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Original Articles.

PERNICIOUS ANEMIA.

REPORT OF THE PROGRESS OF CASES PRESENTED TO THE ASSOCIATION IN 1900, AND REPORT OF A CASE WITH DIFFUSE SPINAL CORD LESIONS AND POST-MORTEM FINDINGS.*

FRANK BILLINGS, M.D.

CHICAGO.

Of the twenty cases reported last year to the Association, ten were dead.[1] During the year, of the remaining ten, four have died; of the remainder, two have disappeared, and four are still under observation. No further observations were made of three of the four who died, because of their residence in remote localities, and no autopsies were held upon them. The fourth (No. 14 in the series) died in February of this year, and since the first report many examinations of the blood have been made. Last May, when her case was reported, she was on the decline. She remained in this low state until October, when an improvement wave began, which reached its height in December. At that time she had over 2,000,000 red cells and about 40 per cent. of hemoglobin; then a rapid decline occurred, with a fall to less than 20 per cent. of hemoglobin and 659,000 red cells per cubic millimeter. The white-cell count kept pace with the improvement in the red cells and hemoglobin, and fell with the decline of the other elements of the blood, just as was noted in the report of last year. During the decline there was a large increase in the number of nucleated red cells. The accompanying chart shows graphically the blood curve in this case. Unfortunately, no autopsy was allowed. (See Chart No. 4.)

Upon the cases still living, observations have been continued upon Cases No. 10, 12 and 13 of the series. When reported last year, No. 13 was upon a wave of improvement, and this wave has remained unbroken up to the present time. The number of red cells, the percentage of hemoglobin, and the number of white cells are about normal. There have been no nucleated cells found since January, 1900. The patient, however, does not look as well as the condition of the blood would indicate. There is a yellow tinge of the skin. He is not strong and has less endurance than before the illness began. Furthermore, the blood cells still show irregularities of form and size. It is not improbable that his improvement wave will be broken by a fall in the near future. The case is a remarkable one, because of the long wave of improvement. The chart shows graphically the condition of the blood during the two years he has been under observation, and it is to be noted that even in this stage of improvement the color index has remained high. (See Chart No. 1.)

No. 12 returned from Iowa to Chicago in September, 1900, and since that time has been under weekly observation. She has had various waves of slight improvement and decline with the constant presence of nucleated cells and a high color index. At this date she is in an improvement wave, as indicated by the accompanying chart. (See Chart No. 2.)

No. 13 of the series has been under constant observation since the report. She was upon a wave of improvement when last reported, which continued until September, 1900, since that time there has been a decline, with slight waves of improvement, but the chart shows a continuous decline. Nucleated red cells disappeared entirely from the blood during this long wave of improvement, but have been found during the last two months. When at the greatest height of the wave of improvement, the color index was low, but with the wave of decline came the usual high color index. (See Chart No. 3.)

The continued study of these cases has brought forth nothing new in the way of blood changes. The conclusions which were read in the paper of last year have been fully borne out by the continued examinations made.

*Dr. Joseph A. Capps, who is associated with me in my private work, has made some interesting experiments with the hematocrit during the last year.

It has long been recognized that the blood in pernicious anemia is characterized by the presence of large red cells, both nucleated and non-nucleated. This tendency to enlargement of the cells explains in part their increased capacity for taking up and carrying hemoglobin. To express accurately the actual hemoglobin content of the average cell, we use the convenient term "color index," which is the per cent. of hemoglobin divided by the per cent. of red cells.

The means of determining the size of the red corpuscles is quite as important as the estimation of the hemoglobin-content of the cells.

The old method of measuring the diameter of a large number of cells is unsatisfactory because no account is taken of the thickness of the cell and we know that in this respect great variations occur. A fairly accurate result may be obtained, however, by the use of the centrifuge in connection with a red-cell count. The percentage volume of the red cells as a whole, as obtained from the graduated capillary tube of the centrifuge, is divided by the percentage number of red corpuscles which gives the percentage volume of the individual corpuscle.

* Read at the meeting of the Association of American Physicians, at Washington, D. C., April 29, 1901.

1. Transactions of the Association of American Physicians, 1900, p. 308.

* A Preliminary Report on Some Observations of Blood in Anemia. JOURNAL, Feb. 16, 1901.

For the quotient no term has been employed. The name of "volume index," therefore, is suggested corresponding to the familiar "color index."

Thus a reading of 45 on the tube equals 90 per cent. by the hematocrit and if in a given case the red cells number by the Thoma-Zeiss count 3,750,000 or 75 per cent. then 90/75 equals 1.20 the volume index, an increase of 20 per cent. above the normal in the volume of the average cell. In twelve of the series reported this test has been applied and all have shown a large volume index throughout the greater part of the disease. The lowest volume index was .93 and the highest 1.93—the others ranging from 1.05 to 1.59. In some instances the volume index was increased when the cell diameter average was not above the normal, thus indicating a probable enlargement of the cell in depth but not in circumference.

These observations also demonstrate that the hematocrit is of value in giving us the corpuscular mass but is unreliable for computing the number of cells.

During the year 9 new cases of pernicious anemia have come under my personal observation and have been examined frequently enough to make the diagnosis certain in each case. Of these cases, 7 were males, and 2 females. The ages ranged from 36 to 69 years. All were very well-to-do people, and in no one was there any specific cause to be found to which the disease could be attributed. The observation noted last year, that in most of the cases reported gastro-intestinal disturbance was a common accompaniment, has been found true also in the 9 new cases. Four of the 9 new cases sought consultation for gastro-intestinal disturbance. In but one of the cases was a bad condition of the teeth and mouth found, which could in any way be a cause of the trouble. A short account of each case will be of some value to those who desire to note the clinical course of pernicious anemia.

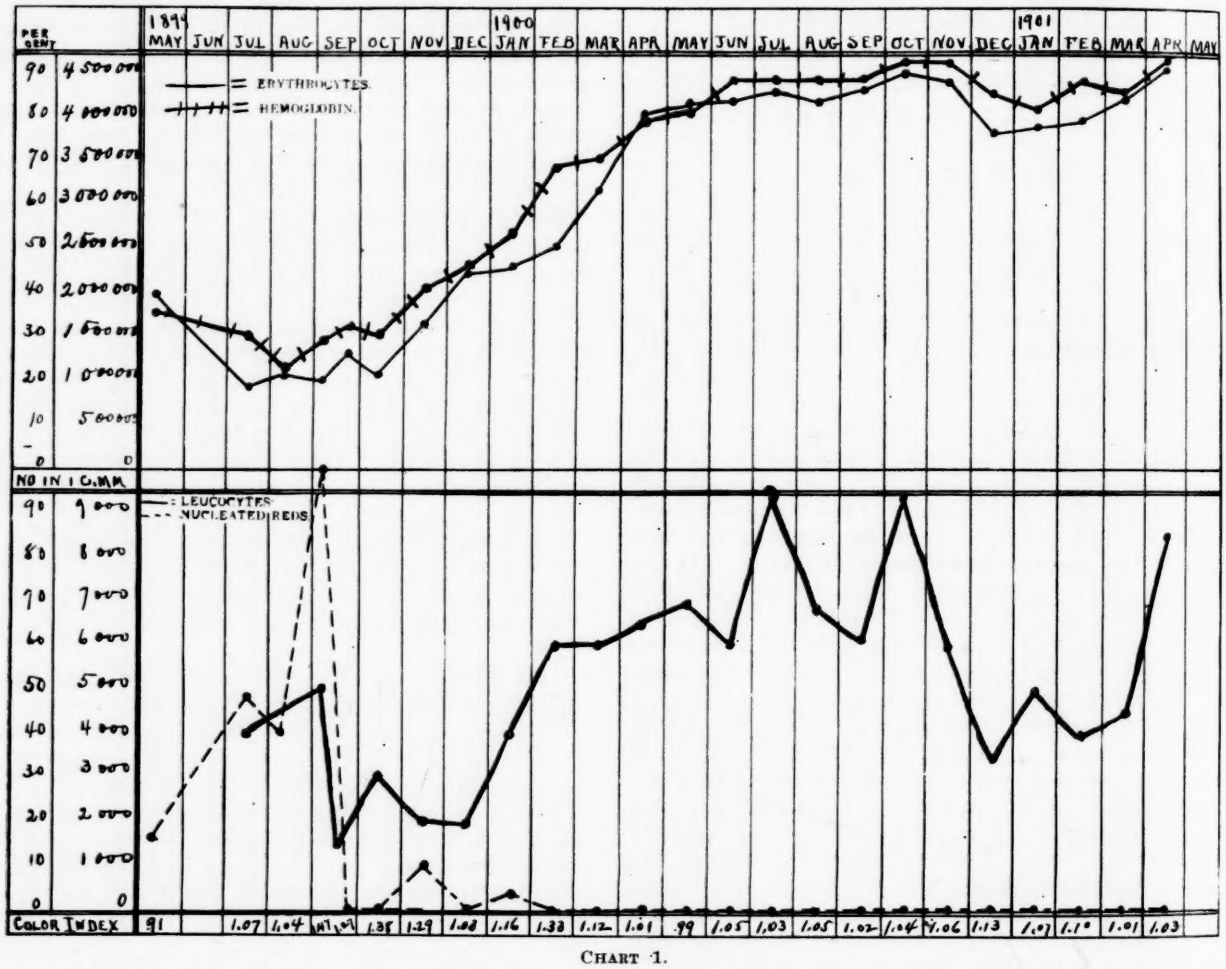
PER CENT
1899
MAY JUN JUL AUG SEP OCT NOV DEC
1900
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1901
JAN FEB MAR APR MAY
= ERYTHROCYTES
= HEMOGLOBIN
NO IN 1 C.MM.
= LEUCOCYTES
= NUCLEATED REDS
COLOR INDEX
91 1.07 1.04 1.38 1.29 1.08 1.16 1.33 1.12 1.01 .99 1.05 1.03 1.05 1.02 1.04 1.06 1.13 1.07 1.1 1.01 1.03

CHART 1.

Case 21.—Mrs. R. L. S., aged 51; married; mother of five children; came Nov. 13, 1900. Has enjoyed good health the greater part of her life. Has had falling of the womb the past twenty-nine years, but has not suffered much from pelvic disturbance. For ten years she has had gastro-intestinal fermentation; some nausea, usually in the afternoon, when overtired. There was often a sense of weight and gnawing in the epigastrium; the appetite was usually poor, the bowels constipated. During the last few months the bowels have been loose, with one or two painless, watery stools a day.

One maternal aunt died of cancer; three maternal uncles died of tuberculosis.

Examination revealed nothing of importance in the chest. The abdomen was somewhat protuberant, and there was slight diastasis of the recti muscles. There was enteroptosis, the stomach lying well down in the lower quadrant of the abdomen. The liver edge was palpable two fingers' breadth below the costal arch. The spleen was not palpable. The stomach contents, one hour after a meal of lean meat, bread and tea, gave no reaction for hydrochloric or organic acids. The urine, specific gravity, 1020; no albumin, no sugar, and no sediment with the centrifuge. Blood examination, hemoglobin, 40 per cent; specific gravity, 1044; red cells, 1,648,000, and 7500 white cells per cubic millimeter. Nucleated red cells, with megaloblasts predominating, were present. Poikilocytosis and chromatophilia were marked.

An examination, April 23, 1901, showed some improvement: hemoglobin, 42 per cent; specific gravity, 1045; red cells,

2,110,000, and white cells, 5500 per cubic millimeter; five megaloblasts, and three normoblasts were estimated to be present in one cubic millimeter. The patient was subjectively better without a gain in weight, but still complained of the gastro-intestinal fermentation and slight looseness of the bowels. The stool of this patient was not examined because her home was a distant point, and a visit of a day only was made to Chicago for each examination. There was no perceptible cause for the disease to be found.

CASE 22.—W. F. MeC., dentist; aged 36; single; presented himself first May 31, 1897. He stated at that time that his illness began with tingling and numbness of the fingers, which later involved the feet and legs, with tenderness of the calves and the knee joints. No spontaneous pain. He had diarrhea for six weeks at the beginning of this illness; always had some gas and epigastric weight after eating. The urine was scant but normal, as he had himself examined it. In February, 1897, a competent hematologist had found the normal number of red cells, but hemoglobin much diminished. A diagnosis had been made in this case of multiple neuritis from intoxication due to digestive disturbance. An examination made at that time showed a man fairly well nourished; weight 136 pounds. The chest was negative. The liver area seemed normal. The spleen was not palpable. The urine, specific gravity, 1028; urea 1.9 per cent; alkaline reaction; phosphates in excess; no albumin; no sugar; no casts. There was tenderness along the posterior tibial nerves. The reflexes were not altered. Blood examination revealed hemoglobin, 40 per cent.; red cells, 2,300,000; white cells, not counted. No parasites were found in the blood.

On Nov. 20, 1897, patient again presented himself for examination. He had been in California for three months and was much improved in general health. He still complained of some pain along the course of the tibial nerves, and the tingling and numbness of the fingers and toes continued. Blood examination showed hemoglobin, 80 per cent; red corpuscles, 4,000,000 per cubic millimeter. The patient was not seen again until March 5, 1900, when he again presented himself. He complained of great weakness and of lessened endurance. He looked pale, and there was a yellowish tinge to the skin. The physical findings were negative, except as noted above. Blood examination, hemoglobin, 60 per cent.; 3,048,000 red cells, and 10,000 white cells. There were no nucleated cells found.

On April 2, 1900, hemoglobin was 55 per cent; red cells, 2,248,000, and white cells, 6,000 per cubic millimeter. Patient felt weaker than before, and complained of dyspnea upon exertion. Physical findings negative.

On April 28, there was a still further decline. Hemoglobin was 42½ per cent; red cells, 1,448,000, and white cells, 5000 per cubic millimeter. Nucleated red cells were found with megaloblasts predominating. The patient was continued upon

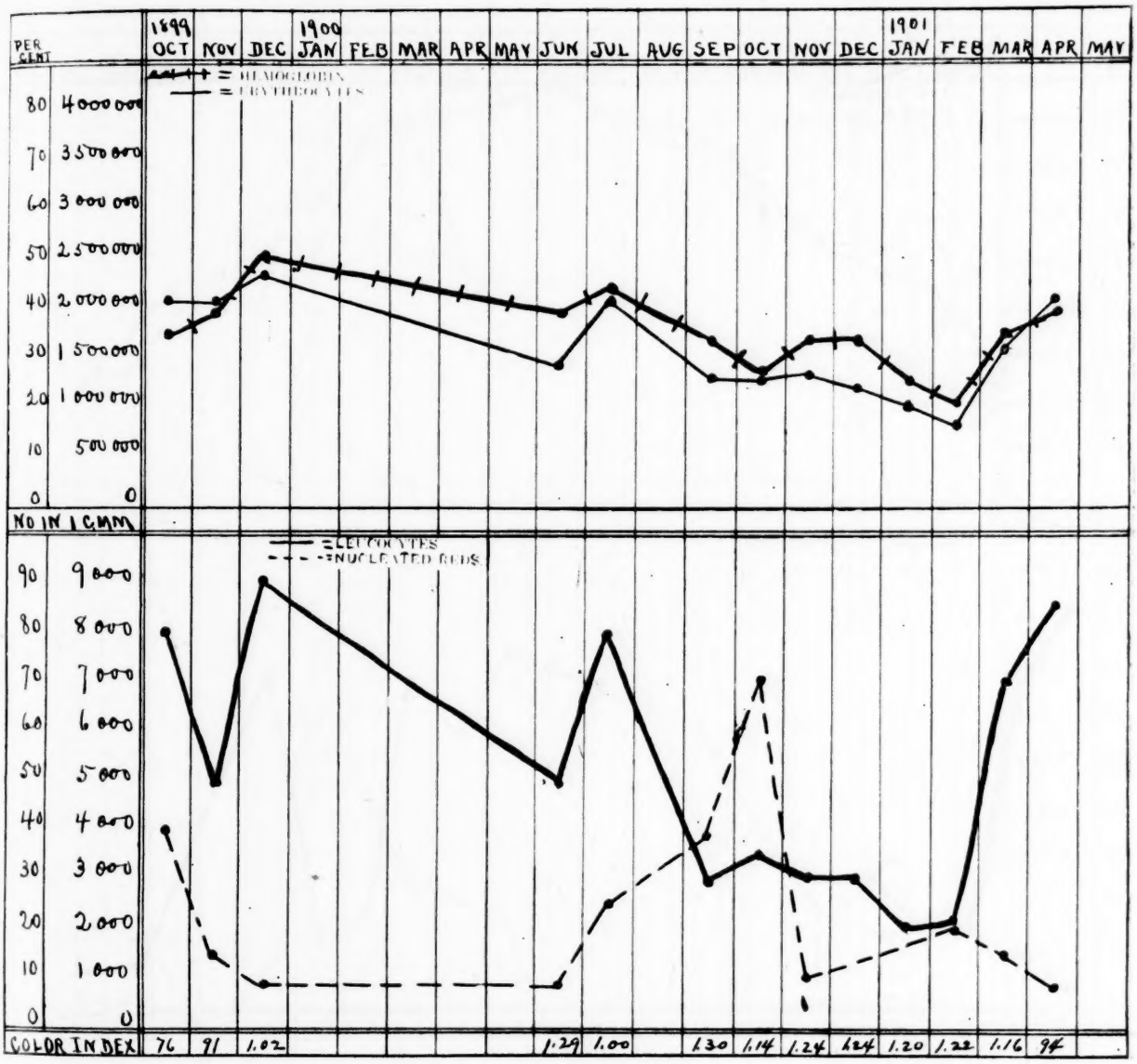

CHART 2.

restorative tonics of arsenic and iron, and advised to go into the country.

On Dec. 28, 1900, the hemoglobin was 33 per cent; specific gravity, 1039; red cells, 1,264,000, and white cells, 4400 per cubic millimeter. Normoblasts, microblasts and megaloblasts were found. Poikilocytosis and polychromatophilia were present during these latter observations, and this condition of the corpuscles, with the continued high color index and the progressive character of the disease make the diagnosis practically certain. The patient is at present living in the country, and no observation has been made since that last noted above. There was no perceptible cause for the disease to be found.

CASE 23.—Mr. F. B. K., aged 53; merchant; married; American; presented himself June 29, 1900. Mother died of tuberculosis, with an associated anemia; father died of heart disease. Patient has not used tobacco or alcohol during his life, and has always been a healthy man. He has not overworked, but has lived much of the time indoors. A year ago he began to lose strength, and later lost somewhat in weight. Six months ago he and his friends noticed a pallor, and he had some dizziness and shortness of breath upon exertion. During the last two or three months there have been numbness and tingling of the extremities. His main complaint at present is weakness, with shortness of breath, and palpitation of the heart from exercise or excitement. He is restless, emotional, and faint at times. There has been swelling of the lower extremities for several weeks, especially in the latter part of the day. He has noticed some black and blue spots on the thighs recently. His appetite is variable; there is no indigestion; bowels usually constipated. There has been occasional diarrhea recently. His weight a year ago was 197 pounds; January, 1900, 165 pounds, and at present, 158 pounds. He has noticed no blood in the stool; has no epistaxis, or hemorrhage from the gums.

On examination a marked pallor, with a lemon-yellow tint, is very noticeable. The mucous membranes of the lips and mouth are yellowish pale. The teeth are good; the mouth, clean; there is some puffiness of the eyelids. The eyes are normal, including the retinæ. The pulse, small and rather rapid. There is a capillary pulse in the lips. The heart area, normal; the lungs, negative. There is a systolic bruit in the neck. The abdomen is negative; the rectum, negative. The reflexes, normal. Urine, specific gravity, 1013, acid reaction; 0.6 of 1 per cent. albumin, with a few finely granular and hyaline casts present. Blood examination, hemoglobin, 28 per cent; specific gravity, 1038; red cells, 1,006,000, and white cells, 1500 per cubic millimeter. Poikilocytosis, very marked. Many nucleated cells are found, with a preponderance of megaloblasts. Color index, very high—1.53.

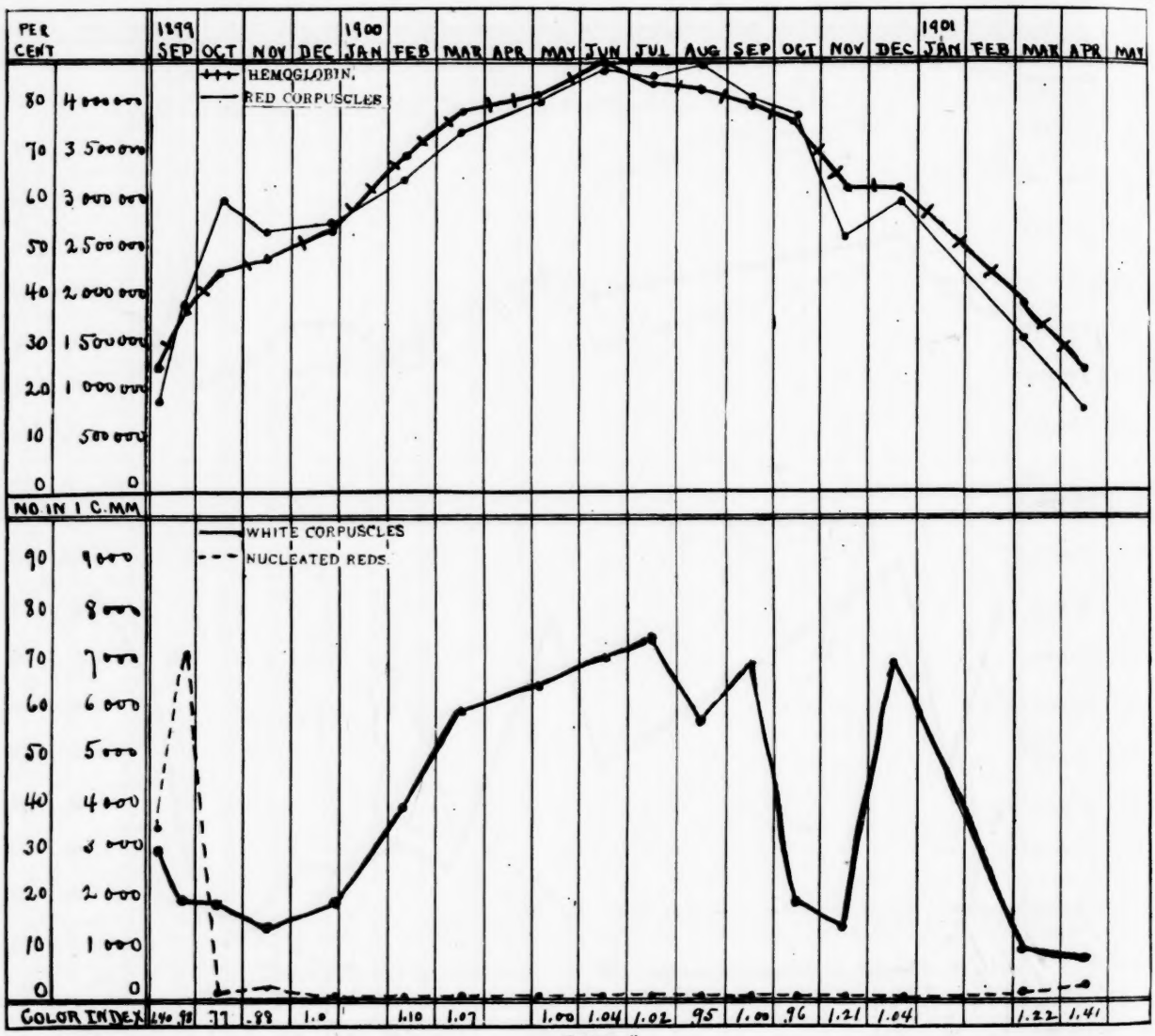
PER CENT
1899 SEP OCT NOV DEC 1900 JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC 1901 JAN FEB MAR APR MAY
HEMOGLOBIN.
RED CORPUSCLES
NO IN 1 C.MM
WHITE CORPUSCLES
NUCLEATED REDS.
COLOR INDEX .40 .98 .77 .88 1.0 1.10 1.07 1.00 1.04 1.02 .95 1.00 .96 1.21 1.04 1.22 1.41

CHART 3.

A letter of recent date, from a physician, states that the patient improved for a few months, but is now becoming rapidly worse again. There was no perceptible cause for the disease to be found.

CASE 24.—W. J. F.; aged 40; male; merchant; presented himself Nov. 10, 1900, with a letter from his physician, Dr. Kanne, Peoria, Illinois. His father died of blood poisoning; mother living at the age of 72. Patient gives a history of good health, except for typhoid fever, when 18. He is an active

worker. Denies venereal disease. While at West Baden, Ind., September, 1898, he was taken with a severe diarrhea which lasted for about two weeks. This was accompanied by pain and slight fever. Succeeding this he was weak and debilitated, and has never been well since that time. A year ago it was noticed that his skin was pale and of a yellowish tint. There was some loss of weight at this time, with diminished strength and endurance, and noticeable dyspnea upon exertion. While skin pale, and of a lemon-yellow color. Mucous membranes of the mouth and pharynx very pale. There are some palpable glands in the superficial carotid triangles. The teeth are sound; the gums normal; the lungs negative; heart area normal; tones clear; the pulmonic second sound slightly accentuated. Liver and spleen negative. Knee jerks are active. There is an ankle clonus of slight degree present; a slight edema of the ankles. The rectum is normal; the eye grounds

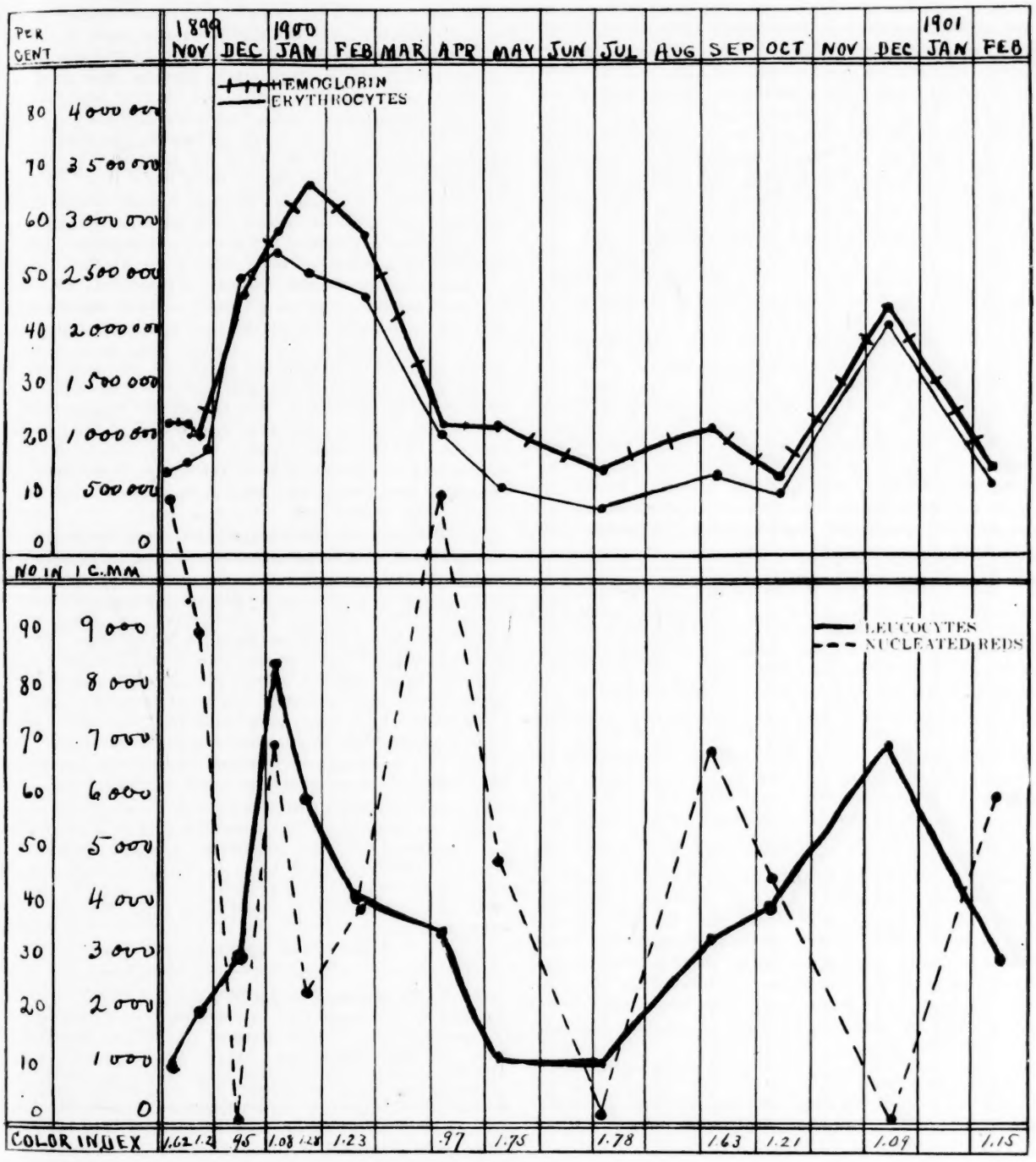

CHART 4.

at Eureka Springs, Ark., he gained fifteen pounds, and has since retained about the normal weight, 142 pounds. During the last two months he has noticed that the pallor has increased; he has lost strength; has attacks of dizziness, faintness and shortness of breath upon exertion. Slight swelling of the ankles has occurred in the latter part of the day. There has been slight headache occasionally, and there is some numbness of the toes and of the finger-tips.

Examination shows, man about normal weight for his height; normal; urine, specific gravity, 1015; no albumin, no sugar, no casts. Blood examination, hemoglobin, 43 per cent; red cells, 1,512,000, and white cells, 6400 per cubic millimeter. Many nucleated cells present, with a preponderance of megaloblasts.

Many examinations of the blood had been made by Dr. Kanne, which, in the relation of the hemoglobin to the red cells, agreed in the main with the examination noted above.

A letter of recent date from Dr. Kanne states that the pa-

tient was, at the time of examination, upon a wave of decline. There was no perceptible cause for the disease to be found.

CASE 25.—J. K.; aged 56; male; married; merchant; presented himself Nov. 24, 1900. Family history, negative; brothers and sisters are healthy. Patient has always been a healthy man in active business. Has used alcoholic drinks very moderately. A year ago he noticed a little numbness in the hands and feet which has since remained. Six months ago his wife noticed that he was pale, and since then there has been an increase of the pallor, with weakness, lessened endurance, shortness of breath upon exertion, and dizziness and faintness at times. The appetite has become poor, digestion disturbed by gas, with eructation, and a sense of weight and distention in the epigastrium. He has been drowsy, but at times very nervous. He has not lost in weight.

Examination shows, well nourished man, with a skin very pale and yellow; mucous membranes white. Teeth, good; lungs, negative; heart tones, normal, and heart area, not increased. The liver extends three inches below the costal arch in the mammary line. The spleen is palpable, extending two inches beyond the costal margin. The stomach and intestines are negative; the rectum, negative. There is slight edema of the ankles; the knee jerks, present and active. Urine, specific gravity, 1021; no albumin, no sugar, no casts. Examination of the blood, hemoglobin, 34 per cent.; specific gravity, 1038; red cells, 1,653,000, and white cells, 2200 per cubic millimeter. Nucleated cells were found with megaloblasts in preponderance.

Examination of the blood made Dec. 13, 1900, by Dr. Werner, of Quincy, Ill., hemoglobin, 33 per cent.; red cells, 1,626,000 and whites, 2100 per cubic millimeter, with nucleated red cells, including megaloblasts. Poikilocytosis was very marked in this case, and megaloblasts were noticeable because of marked fragmentation of the nuclei. There was no perceptible cause for the disease to be found.

CASE 26.—J. E. P., aged 69; married; manufacturer; came Jan. 7, 1901. Mother died of tuberculosis; no other history of transmissible disease in the family. Patient has practically abstained from alcohol and tobacco. Had typhoid when 28. He can recall no other serious illness. Four months ago he was troubled for several weeks with nausea and dizziness, burning sensation in the stomach, with eructations of gas, and hot sensations in the throat. Six weeks ago there were nausea and faintness, with waterbrash. With this there has been progressive weakness, with loss of flesh and pallor; shortness of breath, and increasing lack of endurance. There has been some numbness and tingling in the fingers and toes. He vomited once and ejected food which had been taken eight hours before. He has never noticed blood in the stools. Has had no noticeable loss in weight.

Examination shows, rather thin man, weight 140 pounds—maximum weight 158 pounds—skin very pale and of a yellowish tint. The tongue and mouth are clean; the molars gone, but the remaining teeth sound. There is a thickening of the palpable arteries; a capillary pulse in the lips. The lungs, negative; the heart dullness appears normal; there is a soft systolic blow over the aortic area. The liver edge is felt somewhat sharp on inspiration; spleen not palpable. There is a double inguinal hernia; the rectum, negative. Urine, specific gravity, 1015; reaction acid; no albumin, no blood, no casts. Blood examination, hemoglobin, 39 per cent; specific gravity, 1043; red cells, 1,538,000, and white cells, 2500 per cubic millimeter. Many nucleated cells found, including megaloblasts.

Patient was placed on a restorative tonic treatment. On Feb. 8, 1901, a month later, blood examination gave, hemoglobin, 56 per cent.; specific gravity, 1050; reds, 3,194,000, and whites, 5000 per cubic millimeter. Nucleated cells were present, and poikilocytosis marked. This noticeable improvement of the blood was accompanied with a corresponding subjective improvement.

On March 26, 1901, blood examination showed 78 per cent. hemoglobin; specific gravity, 1056; red cells, 3,768,000, and white cells, 6000 per cubic millimeter. Patient had gained in strength; his digestive power was good, and in every way he felt himself almost well. The restorative tonic treatment was continued.

A letter from the patient, written about the middle of April, states that he is not now so well; that he suffers from weakness, shortness of breath upon exertion, and that his color is not so good as it was when he was last examined.

The improvement wave in this case occurred coincidently with the restorative tonic treatment, and upon the face of it would look as though the treatment had something to do with the great improvement; but the observation made in the past with other cases has been so contradictory, that one can not but feel that improvement may take place in these cases without the aid of restorative tonics, and that, in some instances at least, remedies have received undeserved credit for good in pernicious anemia, when in all probability the improvement was due to the natural course of the disease. There was no perceptible cause for the disease to be found.

CASE 28.—Mr. W., aged 60; married; lawyer; presented himself Sept. 23, 1900. He states that his previous health has been good, but has lived a life of care and anxiety. The last few years he has been at work on a patent which he has felt was worth a fortune, and recently arrangements were made for its adoption by a syndicate which brought him increasing care and anxiety, so that he has not had much rest, day or night. Three months ago he noticed that he was not as strong as usual, and that his endurance was less. He had shortness of breath upon exertion, and there was considerable palpitation of the heart. The extremities became cold, especially when excited, and there was tingling of the finger-tips and toes. His digestion was poor, and there was much fermentation, with eructations of gas. The bowels were usually constipated. Had noticed but little loss of flesh. His friends noticed that he was pale.

Examination, well-nourished man, six feet in height, skin very pale, and of a lemon-yellow tint. Mucous membranes of the mouth, pale; teeth in fairly good condition; gums healthy; lungs negative; heart area normal. A murmur was heard in the neck when the patient was lying down, and a soft systolic murmur was heard at the base and apex of the heart. The liver was apparently normal in size; spleen not palpable; rectum negative; urine negative. Blood examination, hemoglobin, 22 per cent; red cells, 1,388,000; and white cells, 6000, per cubic millimeter. There were many nucleated red cells, megaloblasts predominating three to one over the normoblasts. There was marked poikilocytosis. Several other blood examinations were made, which confirmed the primary examination.

Patient continued under observation for about two weeks, remaining practically in the same state, but with the addition of an edema of the lower extremities gradually increasing in severity. He was obliged to go East at this time, and died suddenly in Boston, on November 7. An autopsy was not performed. There was no perceptible cause for the disease to be found.

(To be continued.)

Infectious Diseases in South America.—This article was prepared at the request of the committee of organization of the recent Latin-American Congress by Dr. E. Coni. It shows what has been accomplished by sanitary measures in South America. The principal cities have materially reduced the mortality by their enforcement of compulsory declaration, isolation and disinfection of infectious diseases. Buenos Ayres and Montevideo have an abundance of good potable water, good drainage and a good sanitary organization and consequently their mortality has been very much reduced, the latter city enjoying the distinction of being the healthiest in South America, and Rio Janeiro that of being the unhealthiest, as the drinking water and drainage are still insufficient. Santiago de Chili, in spite of its mild, equable climate, has a frightful death-rate, only to be diminished by sanitation on an extensive scale. Coni urges that the magnificent results attained in Buenos Ayres by the compulsory declaration and disinfection of tuberculosis, should inspire Brazil, Chili and Peru to follow her example. Peru has no public service of disinfection nor modern isolation hospitals. San Paulo leads all other Brazilian cities in its sanitary institutions and low death-rate.—*Revista Med. d. Uruguay.*

THE VALUE OF CONSERVATIVE TREATMENT OF THE UTERINE APPENDAGES.

AS OBSERVED IN THE LATER RESULTS OF RESECTION OF OVARIES AND OPENING OF TUBES IN NINETY-SEVEN CASES.*

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CHICAGO.

This work was commenced by the lamented Carl Schroeder, who published, in 1884, five cases of resection of an ovary to preserve ovulation and menstruation, in cases of bilateral multiple cystic degeneration of Graafian follicles. He advocated this treatment only for patients who are neither near the menopause nor already mothers of a number of children, and limited it to cases where the parts retained are safely healthy and no papillomata or other suspicions of malignancy are anywhere found. Aug. Martin reported 10 cases in 1889, 11 in 1891 and 6 more in 1893. Of these cases, 24 were subsequently available for longer observation; 8 of them became pregnant and 2 had recurrent disease. Out of 40 cases of salpingostomy, 1 became pregnant.

In 1891, W. H. Polk reported 10 cases of salpingostomy and 9 of section of ovaries. Of the total number, 15 were afterward examined and found to be successful in from 75 to 100 per cent. In 1893, this treatment was advocated by v. Winckel, Hoffmeier, Schatz, Zweifel, and P. Mueller, who suggested the destruction of cystic follicles by the thermocautery; and it was opposed by Hegar, Leopold and Fritsch. At that time and in 1895 —by Donnett—Pozzi reported 23 cases of resection and ignipuncture of ovaries, of which 19 were successful, 4 of these becoming pregnant, and 3 required a second operation. He did not practice salpingostomy. In 6 cases of bilateral cystic ovarian neoplasms, 4 being dermoids, F. Matthaei, Berlin, in 1895, had performed resection of one ovary, and 5 of the patients subsequently bore children. In 1900, Burrage reported 60 subjective cures out of 85 total traced cases of salpingostomy and resection of ovaries, after an observation of at least a year. In 41 of these there had been pus somewhere in the adnexæ at the time of operation. An anatomical cure was achieved in 33 out of 57 cases actually examined. Fifteen pregnancies had occurred and in 5 cases a secondary operation was advised. A. P. Dudley, in 1898, had observed 14 cases of pregnancy in 88 cases of such conservative treatment and he says that in only one case among all those examined, and that was gonorrheal, was he able to find a return of inflammation in the parts that were bimanually palpable. C. Martin, Birmingham, and R. Gersuny, Vienna, favor this mode of treatment in follicle cysts and benign neoplasms of ovaries, after a more limited experience with it. A. Maximo, Russia, has demonstrated the fact that not merely the germinal epithelium on the surface of an ovary does multiply mitotically and cover a defect, but that the deeper ovarian tissues also regenerate themselves and increase. He operated on 40 rabbits and 2 guinea-pigs and made exact histologic studies of the tissues involved, obtained at the death of the animals in from 5 hours to 80 days.

Some unfavorable results have been recorded, as follows: H. C. Coe reports 8 cases in which it was not satisfactory, because either the disorder required a second operation, or because it continued or recurred, or the artificial menopause was not averted, but merely delayed a little. The case reported by L. Fischer, Vienna, and the 4 cases by Waldstein at the Schauta clinic, can not fairly be counted, owing to the fact that in these cases cysts subsequently developed from diseased parts of ovaries, involuntarily left behind in efforts at total extirpation of the parts for severe septic disorganization, only because the parts retained were beyond the reach and inspection, if not the knowledge, of the operators via the vaginal route, and were not designedly selected and reconstructed, as resection implies. This treatment is applicable mostly to ovaries that have undergone cystic degeneration of Graafian follicles and corpora lutea, which results in some cases as a sequel to earlier systemic infectious diseases—exanthemata, diphtheria, typhoid, etc. In other instances they partake of the nature of retention cysts, the follicles having been prevented from rupturing and from discharging their contents normally, owing to inflammatory thickening of their walls and of the tunica albuginea. But very often the condition is that of edema in which the ova die and is, therefore, called a hydrops of the follicles by some; this condition arises from an impeded venous circulation, i. e., a varicose condition in the ovarian circulation, such as most frequently results from descensus (prolapse) of the ovary, either alone, or more frequently, in conjunction with retroversion of the uterus.

The pathologic nature and gravity of these cystic follicles, varying in size from a pigeon's egg to a small hen's egg, has been well established by the findings of Virchow, Klob, Orth, Ziegler and others, and their capacity to cause suffering is well understood by unbiased, practical gynecologists of real experience, who have neutrally observed a larger number of such cases personally for a longer period of time and have exactly and repeatedly read their pelvic status bimanually, both before and after surgical or other mechanical relief of the condition was instituted. Ovaries with such cystic follicles cause much more local and also reflex neuralgic pain than arises from ovaries, the seat of actual neoplasms (cystomata), which are of larger size than the inflammatory or degenerate follicle cysts, but not yet large enough to mechanically encroach upon the neighboring organs. Such ovarian tumors frequently cause no symptoms at all in the beginning and are then only incidentally discovered. Among the ovarian neoplasms, dermoid and parovarian cysts have little or no tendency to malignancy and in their removal the retention of as much as possible of normal ovarian tissue, is both a safe procedure and a paramount requirement. More care is required in the selection of cases for the conservation of ovarian particles in cases of glandular ovarian cystomata—true ovarian cysts. A number of operators specify that they must be non-proliferating, must not bear any surface papillomata and that there must be no suspicion of malignant developments anywhere in the patient. A detailed report of several cases of this kind with others and their subsequent condition will be given elsewhere.

In view of the extreme value of this conservative treatment, if it be successful, and because there still are many who doubt its success, I have undertaken the considerable task of finding out the subjective and anatomic condition of all patients possible on whom I have performed such operations during the last three

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and one-third years, and who have been observed an average period of nearly two years after operation. This I fortunately succeeded in doing in 97 out of 108 cases. Of the number, 80 were actually examined by myself or other physicians, and in 17 cases an accurate and complete written statement by the patient, in answer to specific questions, was accepted. Of the entire number, 9 were treated by anterior median vaginal celiotomy, 32 by median ventral celiotomy, and 56 by bilateral inguinal celiotomy via the dilated internal inguinal rings, in conjunction with a thorough Alexander operation. Naturally resection of ovaries and salpingostomy are practically always auxiliary procedures to other operations of equal, and usually, greater importance, like the removal of neoplasms or of parts of these organs that have been completely disorganized by inflammatory processes, or the rectification of complicated displacements and of parturient injuries. The nature of all these allied indications taken together and the question of future fecundity in each case, determine the choice of the route for operation. The vaginal route, in patients who are intended or expected to retain a capacity for conception, is best limited to cases that have no displacement of the uterus to be cured, likewise no large neoplasms and no considerable purulent accumulations or exudates in or about the organs, except parametritic abscesses, which should be drained into the vagina. This natural and severe limitation of vaginal celiotomy in such conservative cases is wise also, because however favorable this route is for extirpation of parts or all of the organs, it is not auspicious for conservative work or reconstruction of the adnexæ, for when they are normally located, too much violence is done to their more important lateral supports in dragging them downward and inward into the narrow median opening below, sufficiently to do them any good. Even then, delicate resection and accurate plastic coaptations—the most ideal surgery on ovaries—is usually out of the question and thermocauterization must be used. Moreover, when an ovary is already so much prolapsed as to be readily accessible, its displacement can not be remedied via the vagina, and resection or cauterization of it then does little and only temporary good.

Ventral celiotomy I choose in all cases of solid or cystic tumors of the internal generative organs that do not require removal of the uterus and are not small and uncomplicated by adhesions or septic appendages; likewise for cases in which inflammatory processes have caused extremely firm or extensive fixation of the uterus and appendages, or have left pus, or its equivalent, probably present in or about them.

The third class comprises that large class of patients who are not near their menopause and who have neither tumors nor septic accumulations, but who have retroversions or retroversioflexions of the uterus that are complicated either by adhesions or by degenerate conditions of the appendages—the result of inflammatory processes that have run their course and have died out, or of long-standing embarrassment of the venous circulation incident to the displacement. If patients with such comparatively minor lesions are operated on at all, it should be with a practical assurance that their displacement will be cured permanently and not merely up to the time of their next childbirth, and also that parturition will not be complicated by the results of the operation. This crucial requirement, by the writer named "the double test of pregnancy," has so far been quite uniformly achieved by the Alexander operation only. Furthermore, as the internal inguinal ring is fortunately directly in front of, and near to, the normal location of the ovary and ampulla of the tube on each side, fixations of the retroverted uterus and of the adnexæ can be relieved quite well by means of an index finger introduced through each Alexander wound, somewhat dilated; and these delicate organs can be led into these openings more easily and naturally than into any other opening that can be made in the abdomen or pelvis, and they can there be reconstructed and relieved of deleterious parts with the greatest facility. For these cogent reasons, this combination of intra-pelvic manipulation by touch alone, with the Alexander operation is the best procedure for the patient in the class of cases here considered.

The effect of the thermocautery is not precise and is not limited in its extent. Its destructive effect is too great in so small and delicate an organ as the ovary, and the cellular infiltration that occurs beyond the line of demarcation between the dead and living tissue, must induce more of a cicatricial condition than is occasioned by an aseptic plastic operation. In several cases I have observed a temporary, but distressing, amenorrhea after ignipuncture of an only ovary. But it is to be preferred when the organ is not sufficiently accessible for an exact resection, which is the rule via the vagina, and also, when a normal degree of asepsis is doubted in the ovary itself or its tube, or when pus has been encountered during the operation in such a way as is likely to contaminate the subsequent steps, or when fine, perfectly sterile and readily absorbable suture material is not at hand to use in resection.

Resection of ovaries, to be a thankful procedure and not to be followed frequently by a chronic tender or painful condition of the organs, must be done with the observance of the highest degree of surgical cleanliness. The use of sterile rubber gloves by all who come in contact with the wound, sponges, instruments and suture material, in addition to all the antiseptic treatment of the hands commonly in vogue without gloves, has materially enhanced the success of this more ideal gynecologic surgery in my experience.

As to the technic of resection of ovaries, single or isolated cysts bulging forth from its surface are removed by cutting away their projecting portion, peeling or scraping out the lining membrane from the remainder and closing the resulting wound by continuous sutures of fine catgut, after the edges have been trimmed, if necessary. Very hard and contracted, cicatricial parts are occasionally exsected, forming a V-shaped wound which is closed in the same manner. Multiple cysts near each other, especially when more deeply seated, are best opened by a straight or curved incision on the free border of the ovary and extending usually not more than halfway through it. By this incision, or from its surfaces all follicle cysts of 1 cm. or more in size are opened, their lining is peeled or scraped out and then the entire wound is closed, after its surfaces have been coapted and some ragged edges have been trimmed, by means of two tiers of continuous sutures of fine catgut, as follows: in 1, the sutures go to or beneath the bottom of the wound, in order to control the bleeding; in 2, the edges are merely coapted and it terminates in a knot with the original end at the point of beginning. Thus a perfect plastic result is gained with the introduction of the least possible amount of foreign substance, i. e., suture material; and that

introduced is of a very absorbable nature. The catgut is simply hardened in formalin and sterilized by boiling, but never chromicized; the needles are fine, round, non-cutting and have a full curve.

A tube that contains pus, even if this be no longer virulent, should be removed, because its lining is too much disorganized to functionate. But in cases of some such, smaller, closed pus-tubes, the ovary corresponding to it or a part of it, can be saved.

When an ovary or a part of it is free or can be liberated and saved, with or without resection, and its tube is closed and but little distended, the latter should be walled off with gauze, opened and its contents, if any, milked out. If these are not purulent nor tubercular disease suspected, the opening in the free end of the tube can be enlarged by a longitudinal incision of about 1 cm. and its mucous lining turned out over the wound edges and stitched to the outer coats to secure a permanent opening. When the ampulla is too disorganized it may be amputated and a salpingostomy done on the tube stump.

The principles and methods here stated have been practiced by me, with gradually growing conservatism, for over five years and their merits may be partly judged from the following preliminary statement of results of cases, the details of which will be tabulated in a larger collection on another occasion. The first section comprises 9 cases of vaginal celiotomy for inflammatory changes of moderate grade, with no pus. Of these, 8 were married women and parous, each of whom had one ovary and tube removed and the remaining ovary treated with the thermocautery, in addition to the usual operations for prolapse or retroversion or laceration of the cervix and perineum. The one maiden had both ovaries resected, and she is one of the two decided failures. Two others are not disabled, but have pain of variable intensity and frequency. Only 5 of this vaginal class are wholly well in these parts.

The category of median ventral celiotomy comprises 32 cases that were examined after an average period of twenty-four months after operation; 23 were parous, and 24 were married. In 3 of them, restoration or reconstruction of one or both ovaries or of one tube was done with most happy results, in connection with removal of bilateral cystic ovarian neoplasms, varying in size from an orange to a child's head. Twenty-nine of them presented results of inflammatory processes of a severer grade than either of the other two classes; 15 of them showing pus during the operation. Among the total number in this category, the thermocautery was used upon the only remaining ovary in 8 pus cases. Salpingostomy was done 6 times. Suspension of the ovary and tube on one or both sides in 8 cases. Plastic resection of one ovary was made 20 times and of both ovaries in 2 cases. In 27 cases or about 84 per cent. a subjective cure, and, as far as examined, also an anatomical cure was effected. Four other cases, 12.50 per cent., can work regularly, but have pain frequently, which is probably due in part to the resected ovaries. In one instance only did cysts reform and require a second operation.

The third class of 56 cases treated by bilateral inguinal celiotomy, presented markedly pathologic retroversions, complicated in many instances by adhesions and in all cases by a degenerated or disorganized condition of the adnexæ, which required reconstruction of some parts in all and removal of other parts in most of them, in conjunction with a very thorough shortening of the round ligaments and usually also plastic operations upon the cervix or perineum, or both. Salpingostomy among these was done only once. Suspension of an ovary and ampulla of tube 9 times. In 40 cases one ovary—usually the only remaining one—was resected. In one case one ovary was resected and the other cauterized. In 15, both ovaries were resected. Average period of observation of all these cases was 23.20 months. Forty-eight of them were examined by myself or other physicians, and of 8 cases a complete and explicit statement in writing was accepted. In 49, or 87.50 per cent., of them the parts here considered were found entirely well, although in several of these it took from three to six months after operation for this recovery to develop. Five other cases are never wholly disabled, but have pains frequently which may be due to the resected ovaries. A subjective failure occurred in one hysteric and neurasthenic case and also one anatomical failure in another where larger follicle cysts recurred in an ovary.

During the average combined period of observation of a little less than two years, pregnancy supervened in 1 of the vaginal and in 1 of the ventral and in 8 of the inguinal cases; 7 of these matured and ended naturally. Two confessed to having abortion induced by "instruments in the womb," and one aborted without known cause.

The relative value of the routes for operation is shown in part by the observation that an entire cure of the former disorder was effected only 5 times out of 9 via the vagina—too small a number for conclusions in percentage. On the other hand, 84 per cent. of the ventral, and 87.50 per cent. of the inguinal cases became wholly well. The value of these conservative operations is better appreciated in view of the following facts:

1. It will be difficult for any operator, from his entire experience, to find 100 consecutive cases in which he has removed both ovaries, with or without the uterus, where approximately 85 per cent. will be found to be as free from pain and from distressing nervous and circulatory disorders, and to enjoy as good general health as that proportion of cases here mentioned.

2. In a majority of the cases of resection of an ovary herein reported, it was the single remaining ovary in each case, and, aside from resection, removal of that only ovary would have been the indispensable alternative. In that case these women would not merely have lost their sexual functions to a large extent, which contribute largely to the mental and physical equilibrium of most human beings, but they would also be denied the opportunity, if not the legal right, to contract marriage in the future, and to receive the care, protection and legal perquisites connected therewith.

3. Pregnancy occurred in 10 per cent. of the cases, and in the the absence of wilful pernicious interference its normal termination was substantially assured in all except one case.

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DISCUSSION.

DR. J. WESLEY BOVEE, Washington, D. C.—There is no question but what much can be done in conservative surgery of the ovary, less in conservative surgery of the tubes, if we mean by conservatism a retention of a portion of the organ. I do not believe, except in exceptional cases, that it is advisable to leave a portion of a tube when another portion must be removed. My understanding of the term conservatism is primarily the health of the individual, secondarily, that of function, and thirdly, mental impressions. It seems to me that an ovary bound down by adhesions from tubal disease is usually diseased throughout, and that these organs that we resect and suture again become adherent. When you set up traumatism along the wall of the ovary you find the omentum rushing there to protect it. I have often opened the abdomen and found adhesions where I had previously done nothing but simply punctured, with a thin narrow-bladed bistoury, simple follicular cysts in the ovary. When I find these ovaries I extirpate them. These patients have heat flushes and nervous storms for some time afterward, but I have not done this work long enough to say how long it will continue, although I have seen it last ten years and can not account for it in any other way. We can not always tell from the naked-eye appearance of an ovary what its condition is, and in many organs we find a lack of development, not a sclerocystic change, but one resembling a walled-off trouble which remains as long as the ovary remains. I believe in conserving as much as possible, and I believe in making the mind of the patient easy, but I do not believe in conserving structures that are likely to cause trouble in the future and that can be removed without danger to life, except in those cases where there is an expressed desire on the part of the woman as to the possibility of future pregnancy.

DR. JOSEPH EASTMAN, Indianapolis—Dr. Goldspohn speaks of anterior colpotomy as a means of reaching diseased ovaries and tubes, but that it leaves a weak spot in the vagina; I believe that is a valid objection to doing this conservative work. In cases where we are certain the woman is past the child-bearing period, or where the operation necessitates the production of sterility, I am in the habit of bringing the uterus into an anteverted position, using that as a splint to prevent a cystocele. It is a valuable substitute in cases of extreme prolapse. I was much pleased with the Doctor's idea of going through the inguinal canal in preference to doing an anterior colpotomy. His work is certainly in the right direction. I agree with him that we should use suture material that does not remain so long. It seems to be the trend now to get material that will be absorbed rapidly, within a week or ten days at most.

I was also pleased with the Doctor's remark in regard to asepsis. We talk about it, but it is only the few and not the many who are capable of procuring aseptic wounds. He suggests the use of rubber gloves to make sure of aseptic hands. I accept that, but at the same time it must not be understood that I do so to the exclusion of thorough sterilization of the hand before the gloves are put on.

I take issue with Dr. Bovée in regard to saving some of these ovaries. A stormy menstruation is better than no menstruation. The retention of a sufficient amount of ovarian tissue to maintain sexual impulse is of vital importance to the patient. I have seen hundreds of these physical wrecks where the ovaries and tubes have been removed. These are questions which we should take home to the heart. True conservatism is that which seeks to preserve as much of an organ as possible. It is better to make a second or even a third operation and even to have a stormy menstruation than to deprive the woman of her sexual impulse.

DR. BERNARD COHEN, Buffalo—It is now sixteen years since surgeons began removing ovaries and tubes promiscuously. About five years ago they became conservative. We must not only preserve the patient's life, but also make her useful to her family. When the surgeon has opened the abdomen he must do all he can so as not to jeopardize her life again by a secondary operation. Many women pass a miserable existence or die because they will not submit to a second operation.

The use of gloves is becoming quite common through the East and we seldom see pus where we have absolute asepsis. It can be carried on in a small town as well as in a large city. In most cases where a small amount of the ovary is left, a degenerative process starts in the remaining portion soon afterwards. In watching the cases since 1896, when gynecologists became conservative, I noticed that many patients were having secondary operations, in 35 per cent. of which pus was found. This could only come through degeneration. When the abdomen is opened we had better remove everything found necessary without regard to subsequent nervous phenomena, or to the fact that if we leave a part of a diseased ovary she may have a child, or what is more likely, a secondary operation.

Anterior fixation through the inguinal ring is new to me. Dr. Frederick of Buffalo pulls the round ligament up, pushes a hole through the belly muscles, freshening the edges and stitching the ligaments on the muscles. It is a simple operation and the patients recover very rapidly and have little pain. The operation is too new to give any definite results, and should only be used after the child-bearing period.

DR. W. O. HENRY, Omaha—I am sorry the Doctor did not define what he means by conservative surgery. As I understand it, it is the removal of all organs or parts hopelessly diseased, the saving of such as we have reason to believe will be restored to health or will not further menace health. If that be a correct definition, then I am in favor of conservative surgery. It is a mistake to remove both ovaries and tubes if only one of them is diseased. If we endeavor to save a diseased part it is but right and fair for us to explain to that patient that possibly another operation will be required later on. Although secondary operations are not usually required in these cases, I hold it is better to have to do a second or even a third operation occasionally than to do such complete work in every case.

A lady, childless, very anxious to bear children, a constant sufferer, came under my observation for treatment. We found large ovaries, adherent, dropping down into the cul-de-sac; the tubes were enlarged, and I informed her that one ovary and tube would have to be removed, and that possibly I could save the other; I explained the possibility of a second operation. She consented and I did the operation. I removed the tube, the end of which was sealed over by adhesions, and also one ovary. I split the top of the remaining tube, keeping it open by sewing mucous and peritoneal membranes together. The woman became well and a year afterward bore a child. I hold that even if I have to remove the other ovary the woman has profited immensely by conservative work. So, I say, let us do conservative work, but let us explain to our patients what that means. If they want you to take out everything that is diseased or likely to be, then go ahead and do a radical operation. If you fully explain to patients most of them will say: "Give me a chance; if you can save my menstrual and child-bearing functions, do so."

DR. GOLDSPOHN, in reply—The removal of these organs when not decidedly diseased reminds me of the attitude of the general surgeon of 40 years ago; then he would amputate every leg that had a diseased joint. When he found out that the joint could be resected, he saved the leg. The gynecologist who is simply a surgeon does about the same kind of work as the general surgeon of that day. It is not right and I have very much at heart the sentiment expressed by Dr. Eastman that we should state the case fairly to our patients, explain to them what may be the result on the one hand and the chances on the other, and they will always decide upon a conservative operation. It means so much socially to young women whether they menstruate or not; not so much whether they can conceive. That is a mere see-

ondary matter. You stop the menstrual function of a young female and who is going to marry her, and what does that mean in the future welfare of the individual? Would not some of them just as soon give up life?

I failed to state that there were 10 cases of pregnancy in the 97 cases of resected ovaries. One in the 9 vaginal cases, one in the 32 cases of ventral median section, and 8 cases after the inguinal operation. All of them, except three of the inguinal, went to term. In two of the inguinal cases abortions were induced.

An instance of what can happen from a little piece of ovary that will turn the tide with the patient's opinion of herself and the doctor's services enormously, is illustrated by the following case: A young woman, 19 years old, had pyosalpinx on one side and a cirrhotic, indurated ovary on the other, with a normal tube. After putting her to bed for a month, and giving her most approved medical treatment to avoid operation, it became evident, however, that an operation was necessary. The organs on one side were removed and the most indurated part of the other ovary was exsected, leaving a little stump of ovary. The presence of pus in the case led me to choose the thermocautery in place of resection. In that case there followed amenorrhœa for a year and a half and then a year in which she menstruated a few times, then she became pregnant and had a fine boy. As much as they blamed the doctor previously they are now glad that a radical operation had not been performed.

Ventral suspension of the uterus by means of the round ligaments was first done by Carl Beck of New York, then successively by Ferguson of Chicago and Gilliam of Columbus, Ohio. In cases where an Alexander can not be done, that is the next best operation for retroversion, but it is not an ideal procedure, because the round ligaments were never intended to hang the uterus upon. We must wait until pregnancy sets in to see whether the uterus will remain in normal position after pregnancy, as it does after Alexander operations.

PUERPERAL ECLAMPSIA.*

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In selecting this subject for a brief paper I do so because it is a condition that can not be discussed too often. It is only necessary to glance over the literature to satisfy one that the etiology of puerperal eclampsia is still a mooted question. Lever (from the reports of the Guy Hospital, in 1843) was the first to trace any connection between eclamptic attacks and the excretion of albuminous urine. After it became known that the urine of patients suffering from convulsions contained albumin, and they had some of the other symptoms of uremia, it was very generally considered that these patients were suffering from some form of Bright's disease. Frerichs' theory that uremia is caused from the decomposition of retained urea into carbonate of ammonia, and Traube's theory that uremia is produced in hydremic persons by a sudden increased tension of the aorta, and cerebral edema and anemia, were for a time sufficient to explain these attacks of eclampsia; but as more labor was bestowed in investigating the cause, these ideas were considered of very little value. The writings of Rosenstein, Litzman, and Rayer were valuable contributions. Many writers emphasized mechanical interference with the venous circulation in the abdomen; they claimed that the enlarged uterus, in the later months of pregnancy, occasionally caused pressure obstructing the venous circulation, favoring congestion of the kidneys and the abdominal organs, hence causing obstructive hyperemia of kidneys. Rosenstein was one of the believers in this theory. He says: "The pressure, which under conditions that are not known to us, the enlarged uterus in the later months of pregnancy occasionally exerts upon the vessels of the abdominal organs and especially upon the renal veins, obstructs the circulation of the venous blood; in this way obstructive congestion of the kidneys as well as from other abdominal glands is produced." It would seem strange if there was anything in this theory, that tumors, especially of the fibrous nature, would not cause eclampsia; but they do not.

It has been said that eclampsia was due to pressure exerted upon the ureters, if such were true one would expect to find hydronephrosis, but none has been found in cases where autopsy was held. Many of the clinical aspects of eclampsia are closely associated with the symptoms of uremia, and some investigators were of the opinion that they are identical. In an able article upon this subject, E. P. Davis, of Philadelphia, says: "An effort to positively identify eclampsia with uremia has failed, for many uremics die without eclampsia, and many of the eclamptics do not present the pathological signs of uremia."

Since so much has been done in bacteriology, many investigators naturally turned to some form of germ as a cause of eclampsia. Bacteria have been isolated, which were supposed to be the cause of the eclampsia. Doleris Pouey, and others worked carefully in this line, and were able to say[1] from their investigations: "In all cases in which albuminuric eclampsia was observed the urine contained micro-organisms rendered evident by culture." It has since been studied by pathologists, and the bacteria are not alone in eclampsia, but in pregnant women who are well. When the blood of the eclamptic patient is examined, micro-organisms are rarely found, and from observations one can find no positive proof that any one germ has been isolated which will cause eclampsia.

Frerichs was the first to call special attention to alterations of the blood produced by pregnancy as a cause of eclampsia. It is a known fact that the blood of pregnant women is usually more watery and richer in fibrin than normal. The albumin and red corpuscles are diminished and the white corpuscles more numerous. Frerichs ascribed this impoverishment of maternal blood to drain of nutritive material required for the nourishment and development of the fetus. Some writers claimed some deleterious substance was contained in the blood of pregnant women which was capable of causing disease of the kidneys and at the same time convulsions; these substances have not yet been found.

Chamberlant,[2] working under the direction of Tannier, in 1892, performed a series of experiments on the blood of eclamptic women, and says: "1. Pregnancy tends to the retention of poisons in the body, for the urine of pregnant women is less poisonous than normal. 2. The albumin of eclampsia is probably secondary, following the direct action of the poison on the renal epithelial cells in the effort of elimination.

I think at present it is the universal opinion among the more modern investigators that eclampsia is due to a profound toxemia, and the origin of this toxemia is still unknown. Some claim it originates from defective

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1. American Journal of Medical Science, vol. xc, p. 597, 1885.
2. Northwestern Lancet, November, 1897.

eliminative action upon the part of the kidneys, liver, lungs and intestines, the exact agent of which as yet has not been isolated. E. P. Davis[3] says: "The diminution in the amount of urea excreted indicates that toxins are retained. Less than 1.5 per cent. demand attention on the part of the physician." The clinical aspect of these cases are sometimes extremely obscure, very little warning being given the physician of the approaching attack until the patient is in the midst of one of the most dangerous conditions that one can expect to find. We are prone to neglect the care of pregnant women.

Many of these cases present symptoms, which if they are carefully watched, will give some forewarning of a possibility of the occurrence of eclampsia. To emphasize this, I will mention a case I saw not long since. Early in September, in the absence of the attending physician, I was called to see a young woman who was in the seventh month of pregnancy. She is a young woman of robust build, full figure and splendid color; she had been feeling somewhat indisposed for several days, had some headache and muscular pains, and some distress about the abdomen. I noticed a great deal of puffiness, of not only the lower limbs, but arms, and she had an unnatural puffy condition generally. I gave some instructions of a temporary nature, and instructed her husband to see her attending physician as soon as he returned and have him examine her more in detail. I told him I thought he had better save the urine passed in twenty-four hours that her physician might analyze it.

Some ten days after my visit I was summoned hastily to her home to find her in the midst of an eclamptic attack. I am of the opinion that there were enough symptoms present in this case to forewarn one of the approaching danger, and had the physician watched the symptoms they might have been prevented. It is the duty of the physician to watch the progress of his cases of pregnancy.

The prophylactic treatment is of the greatest importance. It is the physician's duty in assuming charge of a case of pregnancy to keep himself informed of her general condition. Hygienic measures embracing moderate outdoor exercise, good food, frequent bathing, and to watch the action of the kidneys, liver, skin and bowels. Examinations of the urine should be made often enough to keep one informed of its specific gravity, whether there is a diminished elimination of urea.

It is a fact that in many cases we find albumin, but some writers claim that we may or may not have albumin. Gentle catharsis is important, and the hot baths frequently given will keep the skin active. Where prophylactic measures have been carefully carried out and the symptoms of impending eclampsia develop, active medical treatment is necessary. Chloroform should be administered during an attack, and chloral hydrate by stomach is recommended. If necessary, it may be given per rectum, by combining with milk one ounce the yelk of an egg, and 45 grains of chloral. Large doses of morphia sulphate have been recommended, and I think will be of great value. Bleeding, followed by subcutaneous injections or by transfusion of normal salt solution, has been recommended, especially in plethoric full-blooded patients. Veratrum viride is probably more used to-day and more highly recommended than any other drug, on account of its quieting effect on the nervous system and diminishing the heart's action. Parvin[4] says: "Veratrum viride notably diminishes the frequency of the pulse, and convulsions rarely occur where the pulse is kept at or below 60; of 100 patients treated by veratrum viride in the writer's practice, 92 were saved."

R. C. Newton[5] reports twenty-six cases treated by veratrum viride with no death. It is given in doses of 10 minims, hypodermically, or by mouth, repeated at frequent intervals, until effect is noticed upon the heart's action. It is a matter of extreme importance and imposes a great responsibility upon the obstetrician to say just when surgical interference should be resorted to and the uterus emptied. I think each case should be considered, and one's mind influenced by the patient's general condition.

DISCUSSION.

DR. C. L. BONIFIELD, Cincinnati—I agree thoroughly with everything the Doctor has said in regard to making a uranalysis and examining patients before the time comes. I agree thoroughly with him that a vast majority of the cases can be recognized or anticipated by even the laity themselves. For a number of years the gentleman with whom I formerly was associated in practice has been trying to popularize the treatment of eclampsia by the use of veratrum viride. He has written on the subject more than any one else in this country, and he has talked about it on all occasions. Veratrum viride is undoubedly one of the best agents we have for the control of this condition in selected cases. In eclampsia we either have an anemic patient with a small, thready, wavy pulse or a patient with a full and bounding pulse. It is in the latter class of cases only that veratrum is of value. If properly given it is an absolute specific. I do not believe that there has ever been a case with a full bounding pulse that could not be controlled with veratrum. We must be governed by the physiologic action of the drug rather than by the amount of the drug given. The doses mentioned in the text-books are entirely too small. We must start with 45 to 60 minims of Norwood's tincture given hypodermically, and repeated every fifteen minutes, as often as necessary, until the pulse is below 60. It has been my observation, and that of every one who has used veratrum, that if the pulse be brought below 60 the patient will have no more convulsions. It should be kept at this point for two or three days. Where veratrum is not applicable, morphin and chloral are the two drugs to be recommended. My experience with chloroform in this condition has been rather disappointing. I have not seen very much benefit from it. Morphin and chloral, like veratrum, must be used in large doses. The Doctor speaks of giving chloral per rectum. That certainly is the proper way if the patient is not able to swallow the drug. The dose of chloral is anywhere from 40 to 45 grains. Morphin must also be given in full doses. Less than one-half grain hypodermically will be useless. I think that with these methods one can control most cases of puerperal eclampsia.

DR. A. B. CATES, Minneapolis—I agree with the essayist and the last speaker. The essayist, in speaking of the prophylactic treatment, said that it was necessary to give good food. That is indefinite. It may mean a good, generous diet or a very limited diet. I think it should mean an extremely limited diet. Championière claims that no case of eclampsia occurred in his practice where he had an opportunity to keep the patient on a milk diet for at least one week. I think it is the duty of the practitioner when he recognizes this danger to also recognize the fact that it is a toxemia and that he should eliminate by means of the lungs, the skin, bowels, liver and kidneys.

As far as the treatment of eclampsia is concerned, I think we may agree with the last speaker. Veratrum viride is indicated in cases which formerly were bled. The chloral can be used with the veratrum, and the morphin should be used only in those cases where we are not able to control the

3. American Gyn. and Obstet. Journal, July, 1899.

4. Universal Medical Journal, October, 1896.
5. New York Medical Journal, December, 1895.

eclampsia by means of the chloral or the veratrum or both. The morphin is open to the well-known objection that it diminishes the secretions, but we often are obliged to resort to it when we are not able to control the convulsions by chloroform. Then I believe that nothing less than one half a grain should be given and frequently repeated if necessary.

The necessity of examining the urine beforehand can not be too strongly dwelt upon, but I believe that you can not absolutely rely upon albuminuria as a danger signal. I had a case recently in which the urine was examined every day without any albumin being found present. Immediately after the first few convulsions the urine was again examined and still no albumin. Dr. Davis, of Philadelphia, has emphasized the necessity of watching the urea. I think that is valuable in conjunction with other things. I have examined many specimens of urine of pregnant women which contained no albumin but had a very low percentage of urea a great part of the time before the confinement. Therefore, it seems to me that a small amount of urea is not necessarily dangerous. That it is only in cases where you have albumin and a small amount of urea, in conjunction with symptoms such as headache, indigestion, etc., that we are justified in inducing labor. In any case where the urea is persistently low, the urine diminished in amount, down to one pint or less, and with albumin or edema, that is the case where we should not hesitate to induce labor.

DR. B. F. CRUMMER, Omaha, Neb.—I think it is the duty of physicians to dispel the illusion of the laity that the conditions of pregnancy and labor are always physiological, and may be trusted largely to nature. It is undoubtedly this belief that renders legislation governing obstetric practice so difficult to secure. The average legislator thinks of the easy, natural birth, and then makes a large concession to the ignorant midwife. The fact is that in no class of medical practice is the responsibility of the attendant greater. Even with the closest observation we may meet with a severe emergency, such as eclampsia, or antepartum hemorrhage. In threatened eclampsia the question of rapid delivery is extremely important, and medicinal measures occupy only a secondary place. I recently saw with two other physicians a young German woman at the beginning of the eighth month of pregnancy who was so waterlogged that a digital examination could scarcely be made, and the patient could hardly sit upright; yet one of the attendants had held out against interference. I strongly advised the induction of labor, which came on six hours after the introduction of a bougie into the uterus and she was safely delivered. Should eclampsia occur the attendant should have a definite plan of procedure outlined in his mind: Chloroform first, and then as rapid a delivery as is possible with safety to the patient. I distinctly remember a case in my early practice in which after a 12-mile drive I found a woman in her ninth convulsion. With no assistance at hand I first chloroformed her and then applied the high forceps, and not another spasm occurred, although the patient remained comatose for four days, and blind for a much longer period. The medicinal measures such as the exhibition of veratrum, chloral, etc., must vary with the case. Referring to etiology I believe that skin affections have a positive effect in the production of eclampsia. I have attended a lady of 28 who suffered from a rather extensive lichen planus during her pregnancy. Urinary insufficiency was marked, and the tendency in the last weeks was to secrete only 9 to 16 ounces of urine, with a marked reduction of urea. It was only by the persistent use of eliminants and diluents that I was able to deliver her without the threatened eclampsia.

DR. M. ROSENTHAL, Fort Wayne, Ind.—I know of no more frightful condition than that of puerperal convulsions and none that gives the physician more trouble. I have a case in mind that I was called to see one night when she was about four months pregnant. When I reached the house she was unconscious. I was informed that she had had a spasm. I warned them of the danger of convulsions and asked them to measure the urine and send it to me regularly. She passed about 1500 c.c. daily from that time on until the seventh month. On the day on which she had passed 1500 c.c., with no albumin, I was suddenly called and on my arrival at the house the patient had already died from a convulsion. I made a postmortem and the cause of death was evidently an acute congestion of the kidneys. They were hemorrhagic. There were ecchymotic spots in the mesentery, in the liver and lung. The right auricle was distended. In this case a venous section would have been of great service if the patient had been seen in time. I think acute venous congestion plays a great rôle in the pathology of this condition. In this case the urine had been examined regularly, the skin kept active, large quantities of water were given and yet there was a sudden acute congestion of the kidney, the patient dying in a few minutes. I think that chronic eczema is frequently an indication of renal trouble and that which produces the eczema also produces the puerperal convulsions. I do not believe that the eczema itself is responsible for the eclampsia.

C. LESTER HALL, Kansas City, Mo.—The lamentable thing in connection with this discussion is our lack of knowledge of the etiology of this condition. The literature on the subject gives us no definite or entirely satisfactory indication as to the cause of the trouble. Only one gentleman has alluded to the time-honored remedy, that of blood-letting. I think that blood-letting is of vital importance and this condition followed by saline transfusion, seems to accomplish a great deal of good. I have seen the most marvelous results follow blood-letting. If we get these cases early, which is rare, there is a remedy which can be used as a stimulant to the kidneys with the best of results. It is a remedy which is supposed to be purely a diaphoretic and is never recognized as a diuretic. I refer to pilocarpin. I have given it for years, not as a diaphoretic, but as a diuretic in one-twelfth to one-twentieth grain doses three times a day. My attention was called to this drug by accident. I had a case in which I had given the large doses of veratrum suggested by Dr. Bonifield, and yet my patient seemed doomed. I gave pilocarpin hypodermically and much to my surprise it produced a decided diuretic effect without affecting the skin. I then began to use the remedy in suspected cases, giving small doses with much water and the result justifies me in recommending the drug to you.

DR. BEATTIE, in reply—There is one important fact to be remembered and that is that each case is an individual one and must be treated according to the symptoms that have developed. Dr. Bonifield has mentioned that there are cases where veratrum should not be used; I agree with him. Dr. Hall uses pilocarpin and I agree with him. I had a case of eclampsia which Dr. Hall saw with me and we used pilocarpin with good results. The only case I ever lost was one where I did not keep myself posted on the condition of the urine and where I resorted to blood-letting. My experience was not as satisfactory in that case as I expected. I believe that each case must be treated in an individual way, and that no one remedy is a specific for them all.

CESAREAN SECTION AS A METHOD OF TREATMENT FOR PLACENTA PREVIA.*

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During the past ten or twelve years, the question of Cesarean section in the treatment of placenta previa has been from time to time brought to the attention of the profession. Those discussing it have strongly opposed or advocated it; but the probabilities are, like all new departures in medicine, it has not escaped the fate of being judged either too harshly or with too much favor. Lawson Tait[1] was one of its strong advocates, and a short time before his death, in an article on "The

* Read at the Fifty-second Annual Meeting of the American Medical Association, in the Section on Obstetrics and Diseases of Women, and approved for publication by the Executive Committee of the Section: Drs. A. H. Cordier, W. E. B. Davis and Henry P. Newman.

1. The Lancet, Feb. 11, 1899.

Treatment of Unavoidable Hemorrhage by Removal of the Uterus," he took the ground that the only safe treatment for placenta previa is the operation of Porro-Cesarean section. The profession has been slow in accepting this doctrine, and probably never will; for it is the experience of all, that where the placenta is laterally attached, and the cervix easily dilatable, delivery may be conducted with comparative safety; but on the other hand, given a central implantation and a rigid os from any cause whatever, then no more serious or fatal condition can confront the obstetrician; and there are those who believe cases of this character demand the Porro or the classical Cesarean section in the interests of both lives at stake.

The discussion of the subject began with an able article by Hutson Ford,[2] of St. Louis, recommending the operation on theoretical grounds, though the only instance in which it had been performed at that time terminated unfavorably. Drs. Dudley of New York and Boyd of Philadelphia have also written valuable papers advocating this operation from this same theoretical standpoint. Grandin and Jarmin, in their work on "Obstetrics" (edition of 1898), make the following statement: "The elective emptying of the uterus enables us to save nearly 90 per cent. of the children, instead of losing that number, as was the record of the past; and the chances of saving the woman's life may be placed at about 98 per cent.; but these statements apply strictly to cases where there is no temporizing with tampons, or worse than all, ergot." Now, if the conditions here enumerated were invariably present and a skilled attendant at hand when the abnormality first makes its presence apparent; if these cases were only met in well-conducted maternity institutions, and it were possible always to obtain the low death rate mentioned, then every argument in favor of Cesarean section would fall to the ground. I have been unable, however, to find any other authority that places the fetal death rate in placenta previa under any circumstances at this low figure. It must be the exception then, rather than the rule, when the conditions which make is possible are met. On the other hand, Reynolds says: "Even induced labor shows an immediate fetal death rate of 33 1-3 per cent., with an ultimate mortality of from 50 to 75 per cent.;" and the danger to the mother, all agree, is very great.

As is well known, the older statistics show placenta previa to have a very high mortality for both mother and child. Without regard to variety of implantation, in those of Muller the maternal mortality is 23 per cent., and the fetal 64 per cent.; while King's give a maternal mortality of 22.5 per cent., and a fetal of 57.5 per cent. This high maternal death rate has, during late years, most certainly been lowered; not so, however, with that of the child. Here statistics show but little improvement.

Lusk says: "Nearly two out of every three children are born dead, and more than half of those born living die within the first ten days." In a recent paper by Dr. Chas. P. Noble upon the subject of placenta previa, read before the Philadelphia County Medical Society, he placed the maternal mortality at 5 per cent. and the fetal at 50 per cent.; at the same meeting Dr. Barton Cook Hirst placed the maternal mortality as low as 1 per cent., and the fetal at 50 per cent. He does not, however, consider an operation that promises to save most of these fifty lives now lost, with but little, if any, increase of danger to the mother, as worthy of consideration.

The better results reported by these gentleman, at least as far as the mother is concerned, can not by any means be considered as the death rate in general. They can only apply to cases in the hands of experts under favorable surroundings.

As regards the most fatal form of implantation, placenta previa centralis, Dorland's late work yet places the maternal mortality at from 30 to 40 per cent., and the fetal at from 75 to 80 per cent. The ideas suggested by our statistics are of so conflicting a nature regarding this condition, that in order to arrive independently at some definite conclusions, I recently sent blanks to 1000 leading physicians and maternity institutions of this country, asking their experience with it. I have received replies from many of them, so enabling me to present statistics, which I have every confidence at least approximate the truth.

The total number of cases of obstetrics so reported were 105,935, with 216 cases of placenta previa, or an average of one in 481 births. Of these 216 cases, 34 mothers were lost, or a death rate of 15 1-3 per cent.; and 96 children, a death rate for them of 44 1-3 per cent. As to the variety of implantation, there were 88 cases of centralis, and 20 of the mothers were lost, or a death rate of 22 8-11 per cent.; while 66 of the children were lost, a death rate of 70.5 per cent. Of the two other forms of implantation (partialis and marginalis), 128 were reported with 14 deaths for the mothers, a death rate of 11 per cent., and 41 of the children, or a death rate of 31.5 per cent. It may not be without interest to say that none of the mothers died prior to the seventh month, which corresponds to the statistics of Muller, in which, of the 128 deaths noted by him, not one died before the seventh month, and one-third reached the end of gestation. Then, why recommend induction of labor before the child is viable?

While the foregoing statistics show the maternal death rate to be greatly reduced over that of former times, no doubt due to our better methods of treatment, viz., the Braxton-Hicks, version and forceps, bipolar version, etc., yet practically nothing has been done toward lowering the fearful fetal mortality; and surely no one will deny that the child has rights that should be respected. As is well known the Roman Catholic church places the life of the mother second to that of the child; but whether this doctrine be admitted as correct or not certainly the mother should rightfully be held responsible for its welfare, though her own danger be thereby in some measure increased.

In 1893, Dr. August C. Bernays of St. Louis, so far as I know, performed the first successful Cesarean section for placenta previa, saving the mother; the child died in ten hours after the operation from asphyxia. In a recent personal letter to me, he says this operation should be considered as terminating favorably, as the death of the child was in no wise due to it. In his report of the case he mentions two others as having been done prior to his, both of which, however, had proved fatal. Up to the present time there have been reported in this country, as far as I am aware, five cases of placenta previa treated by the classical Cesarean section, and one in Italy. In the latter, which was done by Dr. Matolli, both mother and child were saved. Of the five American cases, the only successful one, aside from that of Dr. Bernays above mentioned, was done by Dr. Frances P. Donnoghue of Boston, in December,

2. American Gynecol. Journal, September, 1892.

1900. In addition to these six reported, making seven in all, Dr. P. D. Covington, of Bellefontaine, Ohio, on April 17, 1901, performed Cesarean section for placenta previa centralis, complicated by contracted pelvis. No report of his case has as yet been published and I am indebted to him for the following short and incomplete account of it:

"In two previous pregnancies embryotomy had been done for the patient, and in the third a dead child had been instrumentally delivered. Following the first embryotomy there had been puerperal mania. It is said that these three children weighed, respectively, 15, 18 and 12 pounds. In the fourth pregnancy a severe hemorrhage occurred at the end of the seventh month. The second hemorrhage necessitated immediate action; and a Cesarean section was done. The patient was bleeding furiously at the time and continued to do so till after the placenta was removed. The hemorrhage was controlled after removing the placenta, by pressure around the cervix and on the broad ligaments, and by the introduction of a deep row of interrupted silk sutures including the muscular wall of the uterus, but not its peritoneal coat. The uterine peritoneum was closed with interrupted silk, and the parietal with continuous catgut. The abdominal wound was closed with silkworm gut and catgut. The mother made a good recovery; the child is well and healthy at date."

Lawson Tait, on December 21, 1898, saved a mother and child by the Porro operation; and in January of the present year, a case in the writer's hands by the same operation was equally successful, a report of which was presented at the last meeting of the Ohio State Medical Society. So far as I know, up to the present time, no other Porro operations have been done for placenta previa. In Lawson Tait's case, though an emergency one, the mother made an easy recovery; but the child unfortunately died a month later of a prevailing bronchitis. In the writer's case, recovery was uneventful, though at the time of operation the pulse was 130, and the woman almost bloodless from repeated hemorrhages. The child, though artificially nourished, is at date growing finely. Theoretically, Cesarean section should have no fetal death rate; and practically, even for placenta previa, it should be exceedingly low, in all probability not more than 10 per cent. There can be no reason for a higher rate than this, and it would likely be much lower than 10 per cent. if the cases were operated before hemorrhage had continued to such an extent that the child's life was endangered by it. Granting that this opinion is not far from correct, will not the saving of from forty to fifty human lives out of one hundred, which we now lose in spite of our best efforts, constitute a strong argument in favor of this new departure in obstetrics?

In the hands of skilful abdominal surgeons the maternal death rate for Cesarean section is far below the 22 8-11 per cent. which my statistics show to be the death rate in placenta previa centralis, and even below the 15 1-3 per cent., speaking without regard to variety of implantation; and if it can be shown that its present low mortality for other conditions is not increased when done for placenta previa, then argument in its favor, in the interests of the mother as well as the child, can hardly be controverted; and I am sure that this will prove to be the case.

It is well known that one of the grave dangers encountered where there has been great loss of blood in the parturient woman, is the failure of the uterus to contract, as a result of her bloodless condition; and, consequently, further hemorrhage ensues. This failure likewise predisposes to sepsis, and in so great degree that in 273 of Mueller's recorded cases, 79 became septic and 54 of them died, or about 20 per cent. The reason for this is perfectly apparent; the uterus, not contracting properly, allows the retention of blood clots and debris, which constitute a most excellent field for the propagation of germs. The unknown quantity, shock, is also an important factor to be dealt with. Recognizing these principal dangers, we may deduce some useful conclusions as to operating.

We may divide cases of placenta previa into cases of emergency, and those which may be kept under careful observation for some length of time. Thus far, it is only in the field of placenta previa emergency cases that Cesarean section has found recognition. The cases of emergency are those in which, when first seen, a large quantity of blood has been lost; and, as a consequence, these are the ones most likely to have further hemorrhage, followed by sepsis and shock. These are the patients, if we are to save them at all, with whom the procedure must be adopted that reduces these factors of danger (hemorrhage, shock and sepsis) to a minimum; and I am sure you will agree with me that the Porro operation does this as no other course of treatment yet devised can. Inasmuch as it can be done with great rapidity, and does away absolutely with all danger of further hemorrhage, shock is thereby materially reduced; and if sepsis follows, it is the fault of the operator, and not the operation.

For these reasons, in cases of emergency, when the uterus fails to firmly contract, I have no doubt the Porro operation will in time prove the preferable method of treatment, and will be done, even though at the cost of the uterus.

In the writer's case the classical Cesarean section would most certainly have proved fatal; for the uterus would not contract after the removal of the placenta sufficiently to control hemorrhage from its site, though at least ten minutes were spent in vain attempts to induce it to do so. Every time the rubber cord, tied about the uterine neck, was loosened, blood would ooze from about the cervix, and it was necessary to tighten it at once. Finally, the uterus was amputated with the happiest results.

In the cases of emergency where there has been but little hemorrhage and the patient is yet in good condition, then the dangers above mentioned would only in a slight degree obtain and the Porro operation would be a needless mutilation; though it may be argued that a woman, once the subject of placenta previa, would live a life of greater safety if the uterus be removed. For it is a well-established fact that, once the subject of placenta previa, her future pregnancies are likely to be complicated by it.

The question as to whether Cesarean section should be used in the class of cases which may be kept under careful observation for a length of time, must be left for future discussion. In my opinion, however, the time will come when some of these at least will be treated by it.

In conclusion: The cases operated are as yet so few in number that no accurate deductions can be drawn from them, but I think it must be granted that Cesarean section, if generally adopted for placenta previa, will reduce the fearful fetal mortality which we now have, to at most 10 per cent.; and when 93 consecutive

Cesarean sections in the hands of three men (Reynolds, Leopold and Evarks), can be done without the loss of a mother or child, we certainly have reason for our faith that it can be done without any increased danger to the mother, over what she must incur by any of the older methods of treatment, and must therefore be considered a correct procedure. The classical section can be adopted where the uterus contracts firmly, where there is no probability of infection, and where the patient is in a condition to withstand the shock necessitated by prolonged operation; but on the other hand, where the uterus does not contract firmly, thus rendering further hemorrhage and sepsis probable, or the patient is unable to withstand additional shock, then the Porro-Cesarean section is, in my opinion, the only procedure warranted.

DISCUSSION.

DR. JOSEPH EASTMAN, Indianapolis—I endorse every word of the paper. At the same time I will call attention to a few points of interest. When we compare the Porro operation with the removal of a large fibroid from the abdominal cavity, conditions are more favorable. Instead of the broad ligaments being large, we find them quite normal. The uterus is also in better shape than in operations for fibroma. Consequently we ought to have less mortality after the Porro operation than following operations for large fibromata. It is essential, as in many other operations, that we get these cases early. Many of them have lost the blood which will carry them through a successful Porro operation before the surgeon is called to see the case. Professor Lusk said that the resources of surgery are rarely successful when practiced on the dying. That is certainly true. The woman may have flowed to such an extent that interference is not indicated, but I believe that even in extreme cases the Porro operation is justifiable. It is, however, not an operation to be undertaken by everybody, nor under all circumstances. The Doctor speaks truly when he says that if the patient dies from sepsis, it is the fault of the operator and not the operation. Only the few are masters of aseptic surgery and not the many.

DR. A. C. BERNAYS, St. Louis, Mo.—I will never forget the Sunday afternoon when I was called by Dr. Thomas O'Reilly. He was, until his death, doing the largest general practice in St. Louis. That day he had a case of placenta previa, the fortieth he had seen in 34 years. I had spoken with him and with others in St. Louis about doing a Cesarean section in these cases. In fact, Dr. Hudson Ford had written a paper strongly advocating, on theoretical grounds, the substitution of the Cesarean section or Porro operation in all cases of placenta previa. Dr. Ford was one of the many who had most unfortunate results with the school treatment of placenta previa.

The first and most important point is to determine the mortality following the treatment of placenta previa according to the school method, and Dr. Gillette has adopted the only means by which we can get at this fact. It seems that he sent out a question sheet to the medical directors of maternity hospitals and that he received replies giving him the record of 106,000 obstetric cases; 260 of them were cases of placenta previa with a mortality of 22.5 per cent. That seems to be a fair way of getting at the mortality in maternity hospitals. Unfortunately, we can not get the mortality in private practice, but I believe it is twice that. When I was in obstetrical practice with my father I know the worst results were those in cases of placenta previa. He had been a professor in a St. Louis medical college and was considered an expert obstetrician. I saw him lose case after case. Of course, this was in pre-antiseptic times. We know that the mortality of placenta previa is very much higher than the mortality of Cesarean section. We have the absolutely correct statistics from German maternity hospitals and also from hospitals in this country. We know that Leopold lost only 2 cases of Cesarean section out of 50 reported the first time, and 3 out of the second 50. Of course, he operates under the most perfect condition in a government hospital where antisepsis and asepsis are carried out to the fullest possible extent. I admit that it is impossible to perform Cesarean section in private houses with a mortality as low as that.

I think Dr. Eastman did not exactly understand the condition when he said he would advocate the Porro operation in placenta previa. I believe it is indicated when there is a narrow pelvis and in cases where it is desirable that the woman should not become pregnant again, but I can see no reason why a woman who has placenta previa should be deprived of her genital organs. She may not have a placenta previa at her next pregnancy. As a routine treatment in this condition, I believe we should always recommend a Cesarean section. It seems to me that the method described by Howard Kelly is so simple and easy that any gynecologist, fairly well skilled in abdominal work, would have a mortality of less than 10 per cent. In the case I saw, the woman had had two gushes of blood. I was extremely careful as to asepsis as I wished to establish the fact that we in America could do the operation successfully. I felt certain that it would become the school treatment for placenta previa. Feeling and sentiment should not enter into this question. It is a cool scientific proposition, to be answered on the basis of carefully collected statistics. If the mortality of Cesarean section in placenta previa is lower than that of the other methods of delivery it will be adopted no matter whether anyone shakes the flag of conservatism or not. Flag shaking and appeals to passion can have no recognition in a scientific body even if brought out by men who have at one time in their lives been looked up to as authorities. The days of authority in science are rapidly passing away. We will respect no authority but demand demonstration.

DR. W. O. HENRY, Omaha—It seems to me that we ought not to be too premature in the matter of the Porro operation. A woman should not be deprived of the maternal function too rashly and without good causes. It is not always necessary to perform a Cesarean operation in these cases. There is a class of cases in which it may be wise or necessary, but there is also a class in which it is not. Perhaps it is impossible at present to say just where the division line is. I saw a case about three years ago of a woman seven months pregnant. The physician in charge was a very competent man; we decided to tide the woman over until the eighth month. The hemorrhage became so severe that we did not dare delay any longer. We performed a premature labor and both the mother and child survived. The mother has since borne a living child and is in better health to-day than she ever was. This was a case of placenta previa centralis, but it was not necessary to do a Cesarean section. These cases usually give sufficient warning by the first hemorrhage, so that they can be taken to the hospital where they can be properly treated. I do not believe that the Porro operation is ever indicated merely because the woman has a placenta previa.

DR. GEORGE J. ENGLEMANN, Boston—There is a fascination in the brilliant results of modern surgery which is liable to lead up too far in that direction. I think that the expressions made here this morning, going out to the profession at large, are dangerous. It has been said that this will be the school treatment for placenta previa. That is a dangerous statement to make. I know what some of these cases are. They are cases which were not emergency operations and which might have been delivered in another way. Women in the hospitals are carefully prepared and the operation is done under the best conditions. That is where you get these brilliant successes of Cesarean section. Not one of them is an emergency operation. What is the result of Cesarean section in placenta previa when the patient is exsanguinated and it is an emergency operation? Who are the men who do these successful sections? They are surgeons skilled in that particular work and they can do it with success in any case. Some men have gone so far as to say that women will prefer Cesarean section because they can be spared the pain of labor. That has been said jokingly, but it is the tendency of the present.

The men who handle most of these cases of placenta previa are the general practitioners in the city and country and they are called in because of a hemorrhage. Frequently the patient is in a desperate condition and they must act at once. What would be the result of Cesarean section? They have some simple methods at their command—the tampon, whether natural or artificial, whether it is put into the uterine cavity or vagina, or whether the leg of the child is pulled down by the Braxton-Hicks' method thus forming the tampon. I am sorry that Dr. Fry is not here. He reported 14 cases with no maternal death and 15 per cent. fetal mortality.

I have recently heard a method advocated in Chicago which is the Barnes' bag introduced into the cervix. I did that 15 years ago. I had no bag, but I used the condum. I had two tubes, one to poke it in and the other to hold it. In that way you get pressure on the placenta and pressure into the uterine cavity, thus holding the bag in place. A vaginal tampon is likely to fill, although that is a routine treatment which I have seen successfully used time and again in Berlin. If it is properly packed, the pains will come on slowly, until finally the tampon is expelled and the child will follow. These are the methods which we must teach and which must be used by the general practitioner and by most of us. Those who have skill can do a Cesarean section, but I do not believe it justifiable in every case. By no means should it be considered as the school treatment.

DR. DUGAN—I would like to ask the Doctor whether he would advise Cesarean section in a case of placenta previa when the hemorrhage comes on at the fourth or fifth month? I should consider the tampon more dangerous than Cesarean section, because with the tampon the bleeding goes on just the same and the patient is extremely liable to die.

DR. P. H. OYLER, Mt. Pulaski, Ill.—I have a large rural obstetric practice, and I made up my mind long ago as to what I would do if I were to meet such a case. I have heard so many reports of tamponing, but the cases all died. Two months ago it was my privilege to be in one of the maternity hospitals of one of our large medical centers. They had a case of placenta previa, and the chief ordered tamponing where the attendants were quite positive that a Cesarean section would have been the proper thing for that case, because of the apparent difficulty in dilating the os. The section was recommended, but tamponing had to be done, and as a result the woman died from internal hemorrhage shortly afterward. That was in an institution where Cesarean section could have been safely performed. It has been my good fortune to meet only one case of this kind in my practice. After the first alarming hemorrhage I did not wait to tampon, but I anesthetized, and gradually bored up and delivered the child in about an hour and a half. The child died five hours later, but the mother made an uneventful recovery. I think the trouble, in a large percentage of cases, is in not taking proper action soon enough. If I could not do anything, I should certainly send for a well-known and recognized expert. I would not subject my patient to any risk whatever on the account of the sentimental ideas so often expressed in behalf of the offspring. Prompt decision to act or abandon the case is my motto.

DR. C. L. BONIFIELD, Cincinnati—I thoroughly agree with Dr. Engelmann that this paper and this discussion should not go out before the world, advocating Cesarean section as the school treatment for placenta previa, without a protest. The statistics quoted are those of men who are experts in abdominal surgery. Those who have quoted statistics from the obstetric standpoint, have quoted statistics of men who are not expert in this work. One man reported 14 successful cases treated from the obstetric standpoint. Another man reported 25 cases. I do not remember the child mortality, but it is certainly an excellent record from the maternal standpoint. As some one has truly said, these are emergency cases and we certainly can not expect to have a low mortality. Before an expert can be gotten the patient will be exsanguinated and the patient's resistance to operation will be materially lowered.

Some one said that it is a well-known fact that a patient who has had placenta previa will usually have it again. If she had it once it indicates that something was wrong with the uterus. I am inclined to believe that it was an endometritis with a dilatation of the uterine cavity. If this condition is relieved and the patient put into perfect health, the probability is that she could give birth to healthy children afterward. Even if the fetal mortality is a little higher it would at least save the mother.

As to the tampon, the last speaker said that the chief of staff ordered the patient tamponed. That was not what he should have done. He should have tamponed her himself so as to make sure that it was properly done. One gentleman spoke of the difficulty in dilating the uterus, doing it promptly and rapidly. I believe that in these cases the patient should always be sent to the hospital and the treatment be done slowly. We are tending too much to gynecology, too much to surgery, and obstetrics is being neglected, and that is the reason why we should try and arrange our program so that a whole day or two would be devoted to obstetric papers. I think one of the greatest faults in teaching obstetrics is that we teach that few vaginal examinations should be made. That is wrong. No man can be a good obstetrician unless he learns to know the mechanism of labor. If he can clean his hands for surgical cases he can also clean them for obstetrical cases. We should teach our students to examine carefully, aseptically and often, to know what they are doing. In this way they will be competent to deal properly with obstetric cases.

DR. F. D. REESE, Cortland, N. Y.—There are two things to take into consideration, the life of the mother and the life of the child. Which shall we save? If we wish to save the child I believe in doing a Cesarean section, but if we wish to save the mother I believe in doing something else. If we are called in these cases let us cleanse our hands thoroughly and introduce one hand directly into the uterus, grasp a leg, perform version and plug up the cervix at once. Then you can deliver at your ease.

DR. H. P. NEWMAN, Chicago—I can hardly recommend the last speaker's statements. The obstetrician should think of something more than the immediate welfare of the mother and child. Their future health should be considered in obstetrical work.

DR. GILLETTE, in reply—Dr. Bernays thinks Dr. Eastman wrong regarding his ideas of the Porro operation in this class of cases; but as I understand them, they are entirely in accord with those which I tried to express in my paper. There is, I am sure, a distinct field for both the classical and the Porro-Cesarean section, if this operation is finally to be recognized as a legitimate procedure for placenta previa. The Porro will probably prove the safer, in cases of emergency where much blood has already been lost, and the classical, applicable to those yet in good condition. I took the trouble to write to all the gentlemen of whom I could learn, who had performed Cesarean section for placenta previa, and asked the cause of death of their patient, if the patient had died; those who replied, and nearly all did so, invariably said: "She died of shock."

I tried to show in my paper, that in patients operated on by the Porro method, shock was reduced to a minimum and sepsis would not be so likely to occur. We know that shock is due to hemorrhage and prolonged operative procedure. In those cases in which much blood has been lost, the uterus often will not contract firmly, and is on this account extremely likely to bleed again. The Porro does away with this danger entirely. Further, a classical Cesarean section requires more time for its performance than the Porro, which entails more shock. For these reasons the Porro is in my opinion a safer operation in emergency cases.

When facing a situation of this kind the question as to whether the patient can afterwards bear children or not, can not be considered the paramount one, but instead, the present saving of the two lives entrusted to our care; and we would certainly not be doing our full duty to both, if the course adopted were not the one most likely to accomplish this. I am sure no one would advocate Cesarean section for all cases of placenta previa. Where there is partial or marginal im-

plantation, the older methods are usually successful; but the cases of the central variety, where the cervix does not easily dilate, and in which the hemorrhage is profuse and uncontrollable then Cesarean section, in my opinion, is not only a justifiable procedure but is imperatively demanded.

THE CHEMICAL AND MICROSCOPIC EXAMINATION OF BLOOD.*

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Until recently little has been known of the blood as a factor in the cause of disease. The microscopic morphologic changes which take place in the blood, and their cell identity, have quite definitely been fixed or determined; however, there has not been much progress made from a chemical standpoint in blood examination. Recently, Schmidt, Hoppe-Seyler, Judell and others have contributed liberally to the chemistry of the blood, and among other things they have given us chemical blood analysis, and a working foundation whereby we are enabled to forward chemical analyses of the blood with more precision. The blood in the body is enclosed, so to speak, in a sealed tube, and is unable to gain exit, except by osmosis, or through solution of continuity in the blood-vessel. The depletion of the red blood normally takes place, principally, in the spleen, and it receives its supply from the lymphatics and red bone marrow.

The blood is composed of plasma, serum and blood-plates. Intermixed in the blood, gases are found—carbonic, oxid and oxygen. Salts are also found—magnesium, calcium, potassium and sodium. To these salts are accredited, by many writers, the alkalescence of the blood. In the blood are found red and white blood-corpuscles. The red corpuscles are composed of oxyhemoglobin and neucloproteids, lecithin and chloesterin.

In the leucocytes have been demonstrated fatty acids, lecithin, glycogen and salts, similar to those found in red cells. Blood-plates are regarded by Lilienfield as belonging to the neuclo-albumins, and are supposed by him to be the remnant of the leucocytic neuclei.

The blood serum, containing serum-albumin and serum-globulin, is subject to chemical change in puerperal septicemia, and in febrile disease; serum-globulin is less subject to change than serum-albumin.

The inorganic salts of the serum are phosphates, chlorids, carbonates and sulphates. The pathologic variations in the phosphates of the serum vary in slight degree and importance. The variations in the chlorids of the serum, investigated by Schmitt, Barnicke, and Limbeck, have not been found extreme nor of notable pathologic import, although this principle is chiefly responsible for the isotonic relations of cells in serum. A high percentage of chlorid is usual in anemia. The larger the proportion of plasma, the greater is the percentage of chlorids in the blood. The alkalies, sodium and potassium, are principally combined with chlorin in the blood. Large proportions of phosphates and carbonates of sodium and potassium are found. Sodium salts are principally found in the plasma, being usually increased in the watery blood. Potassium, found in red cells, is diminished in hydremic conditions.

Sodium carbonate in the plasma is responsible for the alkalinity and the power of plasma to produce CO_2. The iron in the blood is principally found in hemoglobin; traces are found in plasma and neuclein. Seegen, Chaureau, Cavazanni, von Mering, Limbeck, found in normal blood traces of glucose, which is increased by a diet of carbohydrates and diminished by muscular exertions. The diastase ferment of blood is found in the red cells and serum, and is found, by Castellino, Tiegel, Plosz, and Precka, to have the power of coagulating blood. It is inhibited by the neuclein and increased by sodium sulphate and chlorid.

After a heavy meal, fat has been demonstrated in the blood, by Gunprecht. The occurrence of free fat, palmatin, stearin and olein in the blood in health and disease has repeatedly been observed. It has been found very much increased in healthy individuals after a hearty meal. Acetone is found in fevers, Jksch has demonstrated fatty acids in the blood of leukemia, acute atrophy of the liver and infectious diseases.

CHOLEMIA.

The poisonous symptoms developed in cholemia have been referred, by most authorities, to the presence of biliary acids. To the naked eye, icteric blood may appear yellowish-red in color in the serum or its foam. Small quantities of bile pigment have been readily detected by a peculiar yellowish tint. On rapid heating, the yellowish-red bilirubin changes to green biliverdin. Diminished isotonic tension and increased resistance of the red cells are peculiar characteristics of the red blood in jaundice. Limbeck found tension of the cells reduced .40, .38, and .32 per cent. sodium chlorid. The well-attested fact that in intense jaundice red cells are frequently dissolved by biliary principles, can with some difficulty be reconciled with that markedly hyperisotonic quality of the serum. Bile acids affect the union of hemoglobin with the stroma of the red cells, rendering hemoglobin more easily soluble; this accounts for the solution of red cells in jaundice, as well as in other conditions. Other characteristics of icteric blood are increase of nitrogenous bodies, diminution of chlorids of both blood and serum, which is displaced by biliary acids, and well-marked increase in the volume of red cells. Well-marked cholemia may be detected by inspection of serum or foam on heating to 50 C. Bilirubin may be changed to biliverdin by this process.

By the intravenous injection of glacial acetic acid in the rabbit, I have been able to get an acid reaction several hours afterward by the phenol-phthalein test. It simulates that found in diabetic cases. Singular to say, I have also found that a rabbit weighing 1550 kilos can, apparently without any inconvenience, tolerate as high as a 2-gram intravenous injection of glacial acetic acid into the vein. Examination of the blood shows decrease in red cells and hemoglobin, also decreased leucocytes.

The specific gravity of the blood varies by the amount of water present and amount of salts contained. The conclusion reached by many authors has placed the specific gravity from 1.058 to 1.062 in man; 1.054 to 1.060 including both sexes. The specific gravity of the blood may be increased by sweating, lack of food, muscular exertion, and may be decreased by freely imbibing in water or fluids.

Osmosis is the force which leads to the interchange of blood through the animal membrane, until the salt in each is equal. When two fluids have equal content of salt, they are said to be isotonic. The isotonic tension of red cells is .46 per cent. sodium chlorid. Homberger finds that albumins, phosphates and chlorids behave differently after changing osmotic conditions. When a lit-

* Read at the Fifty-second Annual Meeting of the American Medical Association, in the Section on Practice of Medicine, and approved for publication by the Executive Committee of the Section: Frank Billings, George Dock and J. M. Anders.

tic acid is added to blood, albumin and phosphates pass from the red cells to the serum, while chlorids pass from the serum to the cells, but when an alkali is added the opposite transfer is induced.

Similar physical effects are produced by the passage of oxygen and carbonic acid through the blood. Homberger suggests that these factors take an important part in the metabolic exchanges in the capillaries.

It is an established physiologic principle that the absorbent power with relation to carbonic dioxid, entirely depends on its alkalescence; venous blood contains more carbonic dioxid than arterial.

Febrile processes are generally accompanied by diminution of CO_2 in the blood. Often in proportion to the height of the fever this condition, according to Gepherd, and Minkowski, is referable for the abnormal production of acid metabolic principles in the blood. In the cachexia of carcinoma, Limbeck and F. Klemperer found marked diminution of the CO^2 in the blood, but did not estimate the acid principles.

The blood is frequently very difficient in CO_2. There are certain unsaturated salts in the blood,—sodium (Na_2CO_3; NaH_2PO_4: Na_2HPO_4)—which, although alkaline to litmus are acid to phenol-phthalein and are capable of uniting with bases. When fresh blood is alkaline serum reacts as acid phenol-phthalein. The capacity of the blood salts to neutralize bases has been called its basic capacity, by Krous. In normal venous blood Krous found the capacity to be .162 to .232 per cent. NaOH, which increase in febrile conditions to .209 to .272 per cent.; this is a demonstration of the marked increase of basic capacity in diabetes and has been regarded as strong evidence of acid intoxication in this disease.

By increasing doses of phenylhydrazin it is possible to reduce the red blood count to one million corpuscles, or even to a greater degree.

EXAMINATION OF THE BLOOD.

Five things are essential in order to make satisfactory examination of the blood: 1. The apparatus must be absolutely clean. 2. The various stages in the process must be performed rapidly, because the cell coagulation of the blood will interfere with any of the tests. 3. The work must be done accurately. 4. Making large quantities of stain and keeping some in glass-stoppered bottle will standardize the solution, so one will receive minimum variations in intensity of stain. 5. Fixing of specimen, by continuous heat, with as slight a degree of variations in distribution of heat as possible; taking of blood specimens with reference to time of day.

In the healthy individual, with the above-mentioned methods, I have noted increase and decrease of the leucocytic count, varying from 1000 to 7000 per cubic millimeter in the course of a day.

In order to more accurately fix the blood count, I have found that specimens taken in the morning, before any undue excitement is indulged in and previous to taking of fluids, or solids, will give a more uniform blood count than those taken at any other period of the day.

A subcutaneous injection of quinin in the forearm in a case under treatment for malarial fever at the hospital at Nantes, France, resulted in paralysis of the thumb and forefinger, incapacitating the patient for work for several months. He sued the hospital, the physician in charge and the interne who made the injection, claiming that the latter had failed to obey instructions to make the injection in the thigh. The courts exonerated the defendants and dismissed the case with costs.

LEUCOCYTE COUNTS IN HEMORRHAGE.*

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It has been conclusively demonstrated that the loss of blood in man and the higer animals is followed by an increase in the number of leucocytes in the circulating blood. This increase in white cells following hemorrhage has been called post-hemorrhagic leucocytosis and ranges all the way from 11,000 to 30,000 white cells per cubic millimeter.

How soon after the hemorrhage the leucocytosis appears does not seem to have been determined with absolute certainty. Cabot, in his "Clinical Examination of the Blood" (page 111), makes this statement: "Immediately after a loss of blood, we can usually find a decided leucocytosis, despite the dilution of the blood." On page 90 of the same work he writes: "Within an hour after a large hemorrhage we commonly find a considerable increase, 16,000 to 18,000 cells."

The size of the hemorrhage required to produce a leucocytosis and the length of time during which the increase of white cells continues after the hemorrhage has stopped are questions upon which meager information is offered. In two cases of cerebral hemorrhage recorded by Cabot (page 111), the loss of blood was not great enough to affect the red cells, but the white cells were much increased. In one a count of 25,000, in the other a count of 15,000 white cells was made.

On page 91 of Cabot's work appear these words: "In hemorrhage from the stomach, the leucocytosis disappears in a day or two, while in traumatic hemorrhage it persists longer."

The statements above quoted sum up in a general way all the definite knowledge we possess on the leucocyte count in hemorrhage. Much, if not all, of the data upon which these statements are founded has been gathered from counts upon clinical cases in human beings, where other factors beside the hemorrhage per se may have played an important part in the rise or fall of the white cells and where the leucocyte counts must of necessity have been made sometime after the occurrence of the hemorrhage.

I wish to place on record some experimental work on the leucocytes in hemorrhage, which excludes these disturbing factors and gives us what appears to be definite results somewhat at variance with generally accepted views. The experiments were performed on dogs, and I am indebted to Dr. R. O. Beard for his kindness in permitting me the use of material upon which he was experimenting.

The normal leucocyte count in dogs is about that of man, 6500 to 9000. The same laws seem to govern the increase or decrease of leucocytes of the circulating blood in dogs and in men, so far as the writer has been able to follow them. There is a leucocytosis of digestion and a leucocytosis following septic infections in dogs as well as in human beings. The varieties of leucocytes in the circulating blood of dogs are essentially the same as those in man. In all probability the conclusions arrived at from these experiments in dogs would apply equally well to human beings.

EFFECT OF HEMORRHAGE ON THE LEUCOCYTES.

The first series of experiments deals with the effect of hemorrhage on the number of leucocytes in the cir-

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culating blood. Five healthy-looking dogs were selected for the experiment. The procedure in each was as follows:

From a freshly made puncture in the ear of the dog a white blood count was made with a Thoma-Zeiss hemocytometer, 1-3 of 1 per cent. glacial acetic acid being used for the dilution fluid. The left femoral was clamped with a small artery forceps, a small incision made in the side of the vessel, a canula introduced into this opening and tied in place. The artery forceps was then unclamped and the blood allowed to flow out of the canula into the measuring glass. As soon as from 200 to 500 grams of blood had escaped, the amount bled depending on the size of the dog, the artery was tied with a silk ligature and a second white-blood count immediately made. The wound was then sutured and surgically dressed. The following results were obtained:

In dog 1, the white count, two to five minutes before bleeding, was 9600 leucocytes. The dog was bled 394 grams of blood from the left femoral artery. The white count, two to five minutes after the artery was tied, showed 6300 leucocytes.

In dog 2, the white count, two to five minutes before bleeding, showed 6600 leucocytes. The dog was bled 493 grams of blood from the left femoral artery. The white count, two to five minutes after the artery was tied, showed 2600 leucocytes.

In dog 3, the white count, two to five minutes before bleeding, gave 9000 leucocytes. The dog was bled 660 grams of blood from the left femoral artery, and the white count, two to five minutes after the artery was tied, showed 8000 leucocytes.

Dog 4, was bled on August 7, 47 grams of blood. On August 9 the white count, three to five minutes preceding the second bleeding, showed 14,000 leucocytes. The dog was bled 354 grams of blood from the left femoral artery, and the white count, two to five minutes after the artery was tied, showed 10,300 leucocytes.

Dog 5 was bled on August 7, 47 grams of blood. On August 9 the white count, two to five minutes preceding the second bleeding showed 13,600 leucocytes. The dog was bled on August 9, 354 grams of blood, from the left femoral artery. The white count, two to 5 minutes after the artery was tied, showed 5000 leucocytes.

The results of this series of experiments clearly prove that, in dogs, immediately following a severe hemorrhage there is a fall in the number of leucocytes in the circulating blood. The counts show further that this fall in normal dogs ranges from 1000 to 4000 white cells per cubic millimeter.

That this leucopenia immediately follows profound hemorrhage in human beings, as well as in dogs, the writer has not the slightest doubt. The figures for white counts in hemorrhages in man have been collected from clinical cases, as after post-partum hemorrhage, after cerebral hemorrhage, after accidents in which important arteries were cut and large quantities of blood lost. In the majority of such cases it must in most cases have been some time after the hemorrhage before the white blood count could have been made. Therefore, observers making counts in such cases have failed to discover this initial fall in the leucocytes which has here been demonstrated. Moreover, this fall in leucocytes is just what should occur if our ideas concerning the change of fluids of the body following hemorrhage are true.

There is good experimental basis for the belief that following hemorrhage the blood becomes hydremic. That is, fluid passes over into the blood-vessels from the surrounding tissue spaces, which augments the diminished volume of blood and strives to restore it to its normal standard of quantity. This augmentation to the plasma of the blood serves to keep up the blood pressure; otherwise a very small hemorrhage might put an end to the organism. As a result of this dilution of the blood, we would expect a diminution in the number of white blood-cells. This we have proved does occur. Other observers making counts not immediately after the hemorrhage have found a leucocytosis which they were at a loss to explain, as will be seen by a statement of Cabot's. He says: "Immediately after a loss of blood we usually find a decided leucocytosis despite the dilution of the blood."

By white blood counts at a later period in these same dogs, I wish to now prove that this initial decrease in the number of leucocytes is followed by an increase in the white cells of the blood, and in all probability it was this leucocytosis which was found in most of the clinical cases of which we have record.

In Dog 1, the count before the hemorrhage was 9600; two to five minutes after the hemorrhage, 6300; twenty-four hours after the hemorrhage, 26,300; forty-eight hours after, 16,600.

In Dog 2, the count before the hemorrhage was 6600; two to five minutes after it, 2600; twenty-four hours after the hemorrhage, 15,600; forty-eight hours after the hemorrhage, 20,600 leucocytes.

In Dog 4, the count two days after the first hemorrhage and two to five minutes before the second was 14,000; two to five minutes after the second hemorrhage, 10,300; forty-eight hours after the second, 16,000 leucocytes.

In Dog 5, the count two days after the first hemorrhage and two to five minutes before the second was 13,600; two to five minutes after the second hemorrhage, 5000; forty-eight hours after the second hemorrhage, 10,000.

Dog 3 was used for intravenous injection of saline solution.

It will, therefore, be observed that the leucocytosis of hemorrhage in dogs is an increase in the number of leucocytes in the circulating blood, which is a secondary phenomenon, the primary initial change being a decrease in the number of white cells.

I regret that leucocyte counts could not have been made hourly for the first twelve hours, to determine at just what time following the hemorrhage the rise in leucocytes begins to take place.

DURATION OF LEUCOCYTOSIS.

Another question of considerable interest is: How long does the leucocytosis of hemorrhage continue? This is evidently a somewhat difficult question to settle, since we do not know what other factors besides the hemorrhage, such as the healing of the wound, the presence of infections not detectible by the naked eye, etc., play a part in the raising or lowering of the leucocyte count.

In one of the dogs (Dog 1) the count became normal (8300) on the seventh day following the hemorrhage. In another (Dog 2) the count was normal (7300) on the seventh day. In this dog the counts were as follows: August 9, after hemorrhage, 6000; August 10, twenty-four hours after hemorrhage, 26,300; August 11, forty-eight hours after hemorrhage, 16,600; August 12, seventy-two hours after hemorrhage, 13,000; August 16, the seventh day after hemorrhage, 7300. In one of the dogs, however, the count, while lower than on previous days, was not normal on the seventh day. For example, Dog 1 counted 11,300 on the seventh day following the hemorrhage, while in another dog the count was higher on the seventh than on previous days. In none of the

dogs was the count normal earlier than the seventh day following the hemorrhage.

Why the leucocytosis continues for so long a time after the hemorrhage does not seem apparent. Two hypotheses might be offered. We might suppose that the leucocytosis of hemorrhage was due to an increased production of white blood-corpuscles, and that this overproduction continued for many days following the hemorrhage. On the other hand, it may be that the leucocytosis of hemorrhage is caused by a migration of ameboid leucocytes from lymph spaces into the circulating blood in search of a more congenial environment, and that the leucocytes once in the circulating blood there abide until the organism has created a suitable habitat for their existence outside the blood-vessels. The latter hypothesis seems to me the more plausible of the two, although both may play a part in the continuance of the leucocytosis.

CONCLUSIONS.

1. In dogs a diminution in the number of white blood-cells in the circulating blood immediately follows a profound hemorrhage.

2. This initial leucopenia is followed sooner or later by an increase in the number of leucocytes in the circulating blood. This is the so-called post-hemorrhagic leucocytosis of all writers.

3. This leucocytosis of hemorrhage continues for at least seven days, and in some cases much longer.

The writer believes that what he has demonstrated in dogs is equally true for human beings, viz., that in human beings, immediately following hemorrhage, there is a decrease in the number of leucocytes in the circulating blood, which has heretofore been overlooked and assumed not to exist, because hematologists have failed to make their counts early enough after the hemorrhage took place.

DISCUSSION ON PAPERS OF DRS. KELLY AND HEAD.

DR. DELANCEY ROCHESTER, Buffalo—I simply rise to ask a question of the last writer, whether, in the differential count of the leucocytes, he noted any change in the relation of the various forms of the leucocytes occurring in the leucocytosis following the leukemia?

DR. W. B. LA FORCE, Ottumwa, Iowa—I should like to ask the reader of the last paper whether, in operations upon septic cases with pronounced leucocytosis, the leucocytes were still further increased in the occurrence of severe hemorrhage, as in non-septic cases with no leucocytosis?

DR. THOMAS MCCRAE, Baltimore—I think the findings of leucocytosis following hemorrhages are of great interest, especially when preceded by a leucopenia. In regard to the counts taken in cases of hemorrhage in the human individual we probably can observe this best in those counts taken in typhoid fever where hemorrhage has occurred. I can recall one case in which frequent counts of the leucocytes were taken, in which hemorrhage occurred, and there was a dropping off in the count of the leucocytes, which was very marked for two hours. I think this is a very important point in the recognition of abdominal conditions in typhoid fever, especially in regard to the diagnosis between hemorrhage and perforation.

DR. GEORGE DOUGLAS HEAD, Minneapolis—Cabot, in his book, states that in all cases of pernicious anemia the megaloblasts exceed the normoblasts and he makes that one of the main points in the differential diagnosis. Dr. McCrae, I believe, found a predominance of the normoblasts over the megaloblasts in many of his cases of pernicious anemia. In the few cases that I have seen, some twelve or fourteen, I have not been able to satisfy myself that the megaloblasts exceeded the normoblasts except at the close of the disease. In the early stages of the disease, when it is important to make a diagnosis, and when the differential diagnosis is the chief point of interest, I have not been able to find that the megaloblasts always exceeded the normoblasts.

DR. FRANK W. HIGGINS, Cortland, N. Y.—One essayist seems to doubt Hunter's theory of the importance of the mouth conditions in pernicious anemia. The point that I wish to raise is in regard to the results of treatment. Hunter is enthusiastic in supporting the idea and his success in treatment seems to promise something in favor of that theory. I have had occasion to treat but one case since reading his articles and certainly the results obtained in that case were very marked, and the recovery was complete; the treatment was based entirely upon his theory. I was impressed with the importance of securing asepsis of the mouth and upper air-passages, as well as the teeth, and it is this point in the treatment of pernicious anemia which deserves more attention than has been given it in the past.

DR. THOMAS MCCRAE, Baltimore—In answer to Dr. Higgins' question regarding the importance of treating cases according to the suggestions of Hunter, I wish to state that I agree with him; it is important that we should attend to the condition of the mouth, the intestinal tract, etc., but I also believe that it is also important in other diseases as well as pernicious anemia. In regard to the therapeutic treatment of these cases of pernicious anemia, brilliant results have followed the use of arsenic. A case treated in 1880 and reported by Hale White in 1890 was alive in 1900. One of our cases returned six years after treatment with cancer of the stomach. I have now under observation one case treated six years ago and the patient is reasonably well to-day. I have seen cases get well under rest, fresh air, good food and arsenic; the most brilliant results have been obtained by this treatment. I certainly agree with the statements made regarding the importance of oral asepsis.

DR. W. D. KELLY, in reply—I hoped to create a discussion, by reading my paper, upon a possible way of medication of these pathologic conditions. We have all used normal saline solution, intravenous injections when there has been a decrease in the amount of the blood and, as I stated in my paper, I was able to use one of the strongest alkalies to increase the alkalinity of the blood without loss of life, experiments being made on the rabbit. In the rabbit it is easy to demonstrate that the injection of air into the veins will kill a rabbit in a few seconds; this shows the importance of excluding air when making these intravenous injections. I had hoped to create some discussion in order that I might gain some information, or suggestions, from some of the gentlemen present, that might further my investigations in this respect.

DR. HEAD, in reply—I regret to say that the differential counts have not been made as yet, but I promise further reports when the differential counts shall have been completed. In answer to Dr. La Force's question, I will state that it has been my experience that where a septic infection with a high leucocyte count exists, an operation is performed and pus evacuated, the leucocytosis falls. I do not know what effect hemorrhage at operation may have upon the fall in the leucocytosis.

THE ANTENATAL TREATMENT OF HEMOPHILIA.*

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In the absence of accurate antenatal diagnosis, cases in which the effects of antenatal treatment can be tested are few and far between. The well-known tendency of morbid fetal states to repeat themselves more than once in the reproductive history of the same mother gives, however, a possible opportunity of trying to

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influence beneficially the health of the unborn infant; further, the hereditary character of some of the maladies which thus tend to repeat themselves increases the probability of the antenatal diagnosis, although it must be confessed that it diminishes or appears to diminish the chances of successful therapeutics. Hemophilia is a malady which fulfills the conditions which have been stated above. It is very clearly and persistently hereditary, and it also shows family prevalence. As a test case, then, it has its advantages. Given a woman who comes of hemophilic stock, who has a hemophilic father or brothers, there is a probability that her male offspring will be hemophilic; and the probability is greatly increased if she has already given birth to one or more hemophilic male children. There is a presumptive diagnosis, then, of antenatal hemophilia when such a woman is pregnant of a male infant. But as a test case it has also disadvantages. Hemophilia is a very intractable disease, and it may be urged that if it can not be cured after birth there can be little hope of curing it before birth. The latter statement, however, is merely an opinion; it may also be urged that it may be easier to affect beneficially a morbid state before birth, i. e., in the fetus, than after birth, but of this more anon. Let me now narrate the history of the case on which this communication is based.

On June 25, 1900, I received, from Dr. W. H. B. Brook, of Lincoln, England, a letter, in which, after a reference to an article on "Antenatal Diagnosis," by myself, which he had read in the *British Medical Journal,* he proceeded to state the facts of a case of hemophilia complicating pregnancy and labor, which he had in his practice; and he closed his letter with the inquiry whether, in my opinion, the administration of chlorid of calcium to the mother in pregnancy would prevent the child from being the subject of hemophilia. The case was as follows:

Mrs. C., 34 years of age, pregnant for the third time, a tall, well-built woman, rather spare, with black hair and a sallow complexion, had always lost much blood at her menstrual periods and had postpartum hemorrhage after both confinements. She last menstruated on Dec. 25, 1899, and expected her confinement in October, 1900. Her family history was interesting; her mother was healthy, but her uncle—mother's brother—died at the age of 11, from bleeding; she, herself, has had four brothers and four sisters, and one of the brothers died at the age of 12, from bleeding; the other brothers are alive and healthy; four sisters are healthy and their male children are also. Her first pregnancy ended, in 1891, in the birth of a male child; there was a considerable amount of hemorrhage, which left the mother weak; the child at birth was white and anemic; it is still alive, but is a marked "bleeder," bruises easily and has suffered from hemorrhages into the joints and from the gums during the shedding of the first teeth. In fact he nearly succumbed several times during the casting of the milk teeth, from great bleeding. The second pregnancy likewise ended in the birth of a male infant, in 1894; there was again postpartum hemorrhage; the infant showed hemorrhage from the umbilical cord at birth, bruised easily, and died at the age of 12 months, during dentition, the cause of death being returned as cerebral hemorrhage. The mother was now—1901—pregnant for the third time and had reached the sixth month.

Such were the facts on which I was asked to form an opinion of successful antenatal treatment. I replied to Dr. Brook without much enthusiasm, pointing out the difficulty of being sure that the fetus was hemophilic, the uncertainty of the sex of that infant even, and the hereditary nature of hemophilia. Hemophilia, I remarked, was not in the same category as such diseases as syphilis, smallpox, and typhoid fever, which the mother transmits to the fetus in utero; being so distinctly and persistently hereditary it was hardly to be expected that antenatal medication begun at the sixth month of pregnancy would greatly affect it. At the same time I gave it as my opinion that chlorid of calcium might safely be given to the mother, and that it would pass through the placenta and reach the fetal tissues. I advised that the treatment with the chlorid be commenced, although theoretically the hopes of success were small; and I also suggested that iron, arsenic and strychnia be also administered, in order to improve the general health and possibly to increase the tone of the uterine musculature and so lessen the risk of postpartum hemorrhage.

Dr. Brook immediately accepted my suggestions and put the patient on a mixture containing 10 grains of chlorid of calcium thrice daily; this was continued till her confinement on Oct. 3, 1900. He also gave her a pill of arseniate of iron with strychnia thrice daily till September 17, when it was replaced by the syrup of the phosphate of iron. I had also referred to the possible benefit that might follow the administration of thyroid extract, especially if the mother did not show the normal thyroid hypertrophy of pregnancy; but as a matter of fact thyroid extract was not given, as it was difficult to say whether the thyroid gland was normal in size or not, and it was thought best not to complicate the treatment. During the three months, therefore, this woman received the above-mentioned drugs.

On Oct. 3, 1900, the confinement took place, and again the child was a male. On this occasion, however, the infant, instead of being white and anemic in appearance, was red and mottled and was, indeed, in all respects a normal new-born. There was no hemorrhage from the umbilical cord, as there had been in the previous case. Further, there was no postpartum hemorrhage, for the first time in the mother's obstetric history. The patient was able to nurse her infant, but Dr. Brook advised that this should not be attempted. The labor was easy, the vertex presented, and the whole process did not occupy more than six hours. It should be added that the cord was not tied for five minutes after the infant was born.

Since October, Dr. Brook has kept me acquainted with the progress of the case, which has been satisfactory all the time. The infant never had any bleeding and did not bruise like his brothers; during the last few weeks he has cut a tooth without hemorrhage. It may be noted as of some interest that his eldest brother still shows the bleeding tendency very markedly; during February he had severe hematuria which was uninfluenced by turpentine, but rapidly stopped under chlorid of calcium and thyroid extract.

What are we to say about this case? Here is a woman with a distinct hereditary history of hemophilia, handed down to her apparently through her mother, and showing itself in the form of postpartum hemorrhage and profuse menstruation and in the procreation of hemophilic male infants; under chlorid of calcium, and iron, arsenic, and strychnia, she passes through her third pregnancy, is confined without postpartum hemorrhage, and delivered of a male infant without hemophilia! The treatment, let it be noted, is only at the sixth month of pregnancy, but still a coincidence and nothing more. At first thought we are inclined, knowing what we know and have been taught to believe regarding the intractable nature of heredi-

tary maladies, to accept the conclusion that it was a coincidence. If we accept the other view, that the healthy, non-hemophilic state of this woman's third son was due to chlorid of calcium administered during the third trimester of pregnancy, we are face to face with the conclusion that it is possible by medicinal substances given to the mother in the last three months of gestation to cure the unborn infant of a malady which no medicines in after-life are capable of curing. Here I am tempted to leave the question. Certainly it is far easier to take it that just as this woman had four brothers, only one of whom was a bleeder, so of her three sons two were bleeders and the third was not; even with the most hereditary complaints some members of a family escape. It was a coincidence and nothing more that antenatal treatment was instituted in the case in which the hereditary influence was going to fail! But, there are some circumstances which encourage me to express the opinion that after all there is a chance that the treatment in this case may have something more than a coincidental relation to the healthy state of the third infant.

In the first place it may be taken, from what is known of the physiology of the fetus and more particularly of placental transmission, that the chlorid of calcium given to the mother reached the fetal tissues; there is no reason to doubt that the iron, arsenic, and strychnia did also. In the second place there is evidence that chlorid of calcium is beneficial in hemophilia after birth, and there is also evidence that hemophilia, if persistently treated in postnatal life, shows a certain amelioration. In the third place there is in the extraordinary power of recovery possessed by the fetus, a factor which must not be left out of account in dealing with all questions of antenatal treatment. When we remember the marvellous power of growth and tissue-building which the fetus displays, a power so great that in one month of intra-uterine life the body weight is quadrupled, we are led to ask ourselves whether this wonder of construction may not be accompanied by an equally great wonder of reparative energy? If there be a greatly exaggerated *vis medicatrix naturæ* in the fetus, is it not possible that even the hereditary maladies may, if properly influenced, show a tendency to cure during antenatal life. May it not be that medicines acting upon the organs and tissues, while these are still in the stage of construction, may be more efficacious than when they act upon structures which are, as it were, set either for health or disease. In the meantime the case and these comments on it are placed before the profession. *In judicando criminosa est celeritas.*

24 Melville Street.

THE PREVENTION OF PULMONARY TUBERCULOSIS IN PREDISPOSED CHILDREN.*

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Before the discovery of the bacillus tuberculosis heredity was supposed to be of great importance as a causal factor of tuberculosis, but its importance is rapidly fading into the distance in the opinion of bacteriologists and phthisiologists, who believe more in the direct contagion theory. Norbury states that "in the light of modern scientific inquiry infection has supplanted direct heredity as the etiological factor *par excellence* in tuberculosis." Direct transmission of the bacillus is claimed to be extremely rare, although authorities agree that this rarity will be less when the observations have been more extensive.

It is claimed that cases of tuberculosis occurring during childhood are due to direct or indirect infection in nearly all cases, statisticians claiming the infection occurs in an increasing ratio during the first and second years of life from 9 to 38 per cent.

The pendulum has been swinging toward the bacillary origin of the disease so long that there is danger of losing sight of the other important causal factor of infectious disease, the condition of the tissues which permit and favor the growth of infectious diseases. It is to protest against neglecting this phase of the subject that urges me to discuss the question in this paper. As physicians whose aim is not only to cure, but prevent disease, we must not neglect to consider the predisposing factors. I stoutly maintain that we must give equal consideration to the two factors—heredity and the bacillus.

Authorities differ as to the percentage of predisposition, but average is about 38 per cent. When we consider that 38 per cent. of the consumptives give an hereditary history of the disease, there need be no apology for presenting the subject for your consideration.

As that master of the subject of the pedigree of disease, Jonathan Hutchinson, says: "We must take cognizance not only of the bacillus itself but also upon the state of the tissues upon which it is implanted. The possibilities of inheritance are twofold. It may be that the bacillus itself may pass bodily or potentially with the sperm or germ from parent to child, or it may be that a condition of tissues liable to its attacks, but for the time free from its presence, may be the result of transmission. If we are permitted to name the tissue condition, which is prone to favor the development of the tubercle bacillus, the name 'scrofula' will perhaps be convenient for the present. A child may then inherit 'scrofula' without the bacillus, or the bacillus without 'scrofula,' or, what probably is most common, both may be present together."

If this view of the heredity of disease is correct, we may take it for granted that the following propositions are admitted: 1. Healthy individuals possess certain degrees of immunity to tuberculosis, as well as other infectious diseases, and this immunity is transmitted to the offspring. 2. If one parent is tuberculous the immunity is weakened; if both parents are tuberculous, the immunity is lessened to a greater degree, and there is engrafted on the progeny a cellular nutritional weakness which permits the invasion of the infective germs. Perhaps it would be more nearly correct if we were to say that such individuals have an "infective predisposition," for they are especially liable to other forms of infection, such as influenza, etc., and their children inherit the same susceptibility. The reason they become tuberculous is because the tubercle bacillus is so omnipresent. 3. Children of tuberculous parents are easily infected, directly or indirectly.

Granted, therefore, that these statements are true, what can be done to prevent the subsequent development of tuberculosis? As Holmes has remarked, the preventive treatment should commence with the ancestors. Stirpiculture, or the improvement of the race,

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is the most potent means to be used to eventually eradicate tuberculosis. The education of the people in stirpiculture would mean the improvement of the coming generations, but of course has nothing to do with the generation already born. But the knowledge that children born of invalid parents are susceptible of improvement is of great value to the present generation. It is our duty to educate parents how to rear children who are predisposed to tubercular disease.

The period of development must be divided into subdivisions: infancy, childhood, youth and maturity. The great aim must be to promote nutrition, to develop the body symmetrically, to educate the mind judiciously, and to inculcate correct habits, physical and moral.

Infancy.—A babe should never be suckled by a tuberculous mother, but by a healthy wet-nurse, or it should be fed with food which is absolutely free from suspicion of being contaminated by the tubercle bacillus. As the babe grows the dietary should contain more fat, and as the salivary glands develop a very slight amount of starchy food should be added. Early a taste for hydrocarbons should be cultivated, so that the patient will not have a repugnance for fatty food as is commonly the case in persons who are inclined to tuberculosis. In a large experience it has been found that consumptives consume an insufficient amount of fat.

As the period of childhood approaches, the diet should contain more carbohydrates, and the inordinate cravings of children for sweets should not be curbed too strictly. In my opinion, pure candy in moderation is beneficial to growing children, if given after and not between meals. A point of not minor importance is the giving of water freely to children. As a rule, children do not drink enough water, as it is a great aid to nutrition, dissolving the food so that it can be more easily digested and assimilated, and acts as a solvent for effete material in the body so that it can be better eliminated.

During the period of childhood the diet should contain a greater proportion of nitrogenous food. Nitrogen supplies muscular force, and the demands upon the muscular system increases with the increasing age of the patient and the entering an occupation of some kind.

The period of puberty is a critical one. The physician should supervise the proper development of the physico-moral nature during this period. Enforced ignorance of the sexual laws prevents youth from seeing through the vista of years and perceiving the woes which follow the abuse of the body at a period when nature is attempting to reinforce it in every way and strengthen it against the future invasion of disease germs. Educate the youth in such necessary physiological laws as will tend to preserve the integrity of all the tissues, and maintain nutrition at its highest point.

Now is the time for education, and it is the time when the mind is apt to receive more training than the body. *Mens sana in corpore sano* is a motto which is forgotten not only by educators but by parents as well. We boast of our public school system, yet there is no method whereby so many budding into maturity can be physically wrecked so readily as by the class method of teaching. The strong and weak are given the same tasks, and the hours are unbroken by physical training, to say nothing of the lack of supervision of the attitude of the scholars in the school room, the want of proper ventilation, and the housing together of children whose vital forces are already lowered by lack of proper food and hygienic home surroundings. It is encouraging to note the tendency of modern school boards to install gymnasia, and employ competent teachers of physical development. Two-thirds of the period of youth is spent in education, and physicians should see that the parents and teachers give each child who has a predisposition to tuberculosis such thought and care in its mental and physical training as will insure health instead of disease. A harmonious and dual development of the mind and body must be secured. Our school-teachers, as a rule, care more to send the parents reports of the rapid mental development of the children than to supervise the equal mental and physical development.

After the period of education comes the choosing of a vocation. The tuberculous inclined should be advised to choose occupations which would necessitate them to be out of doors the greater part of the time. The open-air occupation, if such that it requires the individual to be active, is the best form of work. Avoid dusty work, and factories, crowded assemblies and violent physical exercises. Newsholme, in his work on vital statistics, states the lowest mortality is in clergymen, railway engine stokers and engineers, farmers, brick-burners, coal merchants, and coal miners. Contrary to what would be believed, coal miners seem to be quite exempt from tuberculosis.

During the time the physician and parent have been guiding the development of the predisposed patient into more perfect maturity, it is necessary to keep in mind that the clothing is a question of importance, especially if the patient be a girl. The whole subject may be compressed in two words: the patient should be *warmly* and *loosely* clad. By warmly clad is meant sufficient clothing to prevent chilling, and meeting the weather changes by different weights of outer clothing. The clothing should be loose enough to permit free exercise and unembarrassed respiration. A child with a predisposition to tuberculosis should not wear a corset, and the mother who attempts to control the outline of her child's figure by the use of the corset is laying the foundation of tubercular infection by interfering with the processes of nutrition and the development of the respiratory functions of the lungs. Thin shoes, insufficient head covering, or deficient underclothing are the stepping-stones to tuberculosis. But on the other hand excessive swaddling of the body, or the neck and chest should be avoided, as it tends to a susceptibility to cold catching, and sudden changes of temperature can not be so well withstood.

Cleanliness is the great preventer of germ infection. A clean consumptive will not spread the infection, and a clean body does not afford so good a lodging-place for the germs. Therefore, the predisposed must avoid contact so far as possible with persons who are consumptive or should not use any articles used by such.

Hydrotherapy is of great value. It stimulates the nutritive processes, steadies the vasomotor nerves so that they are not so susceptible to sudden changes of temperature, and hardens the individual. It is impossible to enter into this subject in detail, but its benefit is so great to the consumptively inclined, that it is the duty of the physician to give his clients the necessary instruction.

It goes without saying that the hygienic surroundings of the patients must be as good as possible. Clean, well-ventilated, comfortable houses, built upon proper soil, and so arranged as to receive the maximum of fresh air and sunshine, afford the best chances for the predisposed.

And here the value of the open-air treatment is made manifest. The fresh-air sanatoria of our larger cities, and the country vacation clubs are doing a great deal of good in lessening the susceptibility of the poor in our midst. The sad part of it is that these provisions are necessarily of short duration. There should be established throughout the land fresh-air sanatoria for the children of tuberculous parents, and for the orphans of tuberculous origin. At the children's hospital at Ormesson, under the auspices of the French society for the care of tuberculous children, 34 per cent. of the cases were cured, and at Villiers the per cent. was 34.4 cured, or nearly cured. France beats the world in caring for children who have consumption, or have the tendency, having over twenty seaside and mountain resorts. But if we have not the sanatoria we can instruct our patients in sanatorial methods. These instructions should include dietetic, hygienic, balneological, physical and therapeutic methods of the well-known sanatoria.

Finally, it is the province of the physician to warn parents of the danger of neglecting the so-called benign children's diseases, such as measles, whooping-cough, influenza, tonsillitis, adenoids, etc. The feeble-minded are especially liable to tubercular disease. The acute diseases may be the preparers of the soil for tubercular infection, and they should not be neglected. *Nutrition* is the foundation stone on which to rear the preventive treatment.

It is impossible in the time allotted to me to crystallize all the thoughts on this subject, but if my theme shall be discussed and its importance magnified, and some practical method of instituting preventive measures throughout the United States whereby the increasing army of consumptives may be lessened, no apology need be offered for the mediocrity of this communication.

DISCUSSION.

DR. T. F. WOOD, Angola, Ind.—The subject has been handled in a way to be commended. I wish, however, the essayist had said something about the prevention of the marriage of individuals who are not only predisposed, but are really consumptives. I believe this is one of the great sources of tuberculous disease, and yet our hands are tied, as it were, regarding that phase of the subject. Many physicians dare not discuss this subject, lest they become unpopular and lose business; nevertheless, it is an important matter, and we should speak without fear or favor on this vital point. To-day the statutes of almost every state allow any person, even in the last stages of consumption, to marry and rear children, and in this way transmit the disease to those yet unborn.

DR. WADSWORTH WARREN, Detroit—One point in the latter part of the paper appealed to me especially, and I desire to give it additional emphasis. I refer to the necessity of warning the parents of these children regarding the care of these little ones during an acute infectious disease, or even when they are inflicted only with a mild laryngitis or pharyngitis. Very often these apparently innocent disorders lower the child's powers of resistance so much as to afford a suitable culture medium for the tubercle bacilli; attention to the mouth, throat and pharynx, and to the removal of adenoids and enlarged and patulous tonsils is of great importance.

DR. JAMES A. WORK, Elkhart, Ind.—With reference to clothing, I would say that I believe we should instruct parents more with reference to the changing of the clothing in accordance with the changes in the weather. We know how great and sudden are the changes of the weather in this country, and I think the clothing should be adapted to meet these changes.

DR. CLIFTON SCOTT, Des Moines—The author emphasized the importance of teaching young children in the public schools certain things in regard to abuses which do them harm about the age of puberty. It seems to me that children thus instructed in school would be taught how to prevent the diseases in their own children when they become parents. This can be done by teaching them in the public schools that such persons should not marry. This would be better, in my opinion, than legislation, which will surely increase illegitimacy.

DR. COLUMBUS G. SLAGLE, Minneapolis—I desire to lay stress on malnutrition. I have been in the habit of telling my patrons and friends that consumption does not begin in the lungs but in the stomach. This may not sound very scientific, but it appeals to the popular mind, and I think does good by impressing upon them the importance of a proper dietary. Another point is in regard to fats. One of the most practical lessons I ever learned was in the University of Louisville when I was a student. Professor J. B. Flint always asked any one suspected to be tuberculous if he liked fat, and such persons usually replied in the negative. At one time he was examining a patient far advanced in tuberculosis, and this question about fats was, to the surprise of the professor, answered in the affirmative. So surprised was he that the question was repeated and was answered again in the affirmative. The professor then turned to the students, and expressed his belief that the patient had lied. He then went on to impress upon them the importance of tuberculous individuals eating fats, and particularly those persons who had an aversion to fats because ordinarily they were the very ones most likely to fall victims to tuberculosis.

DR. COLLINS H. JOHNSTON, Grand Rapids, Mich.—In this connection I desire to speak of a paper published in Virchow's Archiv, in May, 1900, in which it is maintained, on the basis of 500 autopsies performed at Zurich, that 99 per cent. of the human race who attain the age of 30 show, on postmortem, lesions of tuberculosis. From this it would seem that almost every one is infected with tuberculosis at some time or other. I wish to insist that one can not have tuberculosis without the tubercle bacilli. Osler maintains that there are only 20 cases on record of persons who have been born with the disease. Undoubtedly there is a predisposition in certain families to tuberculosis, the same as there is to scarlatina, diphtheria, and other infectious diseases. The one most certain method for the prevention of tuberculosis not only in children but in the community at large is to prevent the dissemination of the tubercle bacillus. This is a matter which rests largely in the hands of the medical profession and state boards of health. The State Board of Health of Michigan in 1891 began a campaign against tuberculosis by disseminating throughout the state literature dealing with this subject. Whenever a case of tuberculosis is reported to the local board of health, it is immediately sent to the secretary of the State Board of Health, and this officer sends literature to the family, explaining in detail the proper methods of caring for sputum. In this way, in the last ten years, the death-rate from pulmonary tuberculosis has been very materially reduced.

DR. C. A. KELSEY, Minneapolis—I have been exceedingly interested in this paper, and was very glad to see the position taken by the author regarding the necessity for fats. It is a point which we should bear in mind, for I think the majority of persons having children with a tendency to tubercular troubles seem to have the erroneous impression that these children must not have fat. In regard to the valuable remarks of the last speaker, I would say that, if I understand the germ theory, none of us can hope to escape these ubiquitous germs. I do not mean to say that I would discourage taking proper care of the sputa, but does it follow that the diminution in the mortality in the State of Michigan is due wholly to the care of the sputa? Can we not claim something for improved hygiene in fortifying the system against the attack of the germ. In tubercular wards, nurses of good constitution can remain constantly without becoming infected with tuberculosis. Let us not, however, lose sight of the importance of building up and fortifying the system against the attacks of these germs, developing a physical system in the rising generation which can withstand these noxious organisms.

DR. I. J. K. GOLDEN, Chicago—The main thing in the prevention of tuberculosis among children is to educate them not to be afraid of water. The parents of such children are usually afraid to have their children bathe lest they may catch cold. For the same reason these children are very warmly clad. I am of the opinion that this practice tends rather to favor than to prevent tuberculosis. Tuberculous children should be made to bathe daily, and if not too warmly clad they may not be so susceptible to tuberculosis. I am opposed to the present craze for woolen clothing. If they catch cold, no matter; let them develop a little antitoxin in the system. If laws were passed to prevent the marriage of tuberculous individuals or of those predisposed to this disease, I am afraid there would be nothing but bachelors, and the population of the world would soon vanish.

DR. ROBISON, in reply—I am glad that this subject has brought out such a full discussion, and that the paper has received your sanction on most of the points presented. Some of the states have already framed laws regarding the prevention of marriage of the unfit. Most of these laws have been directed towards preventing the marriage of those infected with venereal disease. In time, by the process of education, the people will learn to dread this disease. Within the last five years the newspapers have helped us to educate the public; yet even lawyers and judges and public men know almost nothing about tuberculosis. I think the subject of infectious diseases should be taught in the public schools just as much as botany is taught. Malnutrition is certainly the starting point of tuberculosis. The case of the woman who liked fats, mentioned by Dr. Scott, seems to me to be the exception which proves the rule. The giving of fat by aiding nutrition prevents the disease. Osler's statistics regarding the transmission of tuberculosis should not be taken as authoritative; for, in the first place, the observations have not extended over a sufficient length of time, and the opportunities for carrying on such investigations are very limited. If you will consult the records of the veterinary surgeons, you will find that the percentage of cases of direct transmission in animals is much larger than 2 per cent., and it is probably true also of the human. The Brompton Hospital for Consumptives has been in existence for two centuries and a half, yet it has been found that the disease is rarely taken by the nurses. In our general hospitals in this country I am sorry to say the internes and nurses do frequently develop tuberculosis. In a hospital in Chicago we have had three internes who have died of tuberculosis in one form or another, although it is quite possible that they may have had the disease before entering the hospital. I will say, however, that the methods of prevention in a general hospital are not so strict as in special hospitals. It is the custom, though obviously wrong, to use a broom in cleaning out the wards of our general hospitals.

TUBERCULOSIS OF ANIMALS IN SOME OF ITS RELATIONS TO HUMAN TUBERCULOSIS.*

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It is not necessary to consume time in demonstrating the importance of a thorough consideration, from every point of view, of the subject of tuberculosis. The importance of such a study is now generally recognized. As smallpox was the great medical problem at the close of the 18th century, so tuberculosis was the most urgent problem at the end of the 19th century. According to Newsholme,[1] smallpox reached its highest point in England in 1796, when 18.5 deaths out of every 100 total deaths were caused by that disease. Tuberculosis was apparently at its maximum in England and Wales in 1838, when 17 deaths out of every 100 total deaths were caused by phthisis,[2] and if the deaths from other forms of tuberculosis could be added the maximum smallpox death-rate of 1796 would be surpassed. The death-rate from tuberculosis, and particularly from phthisis, has been greatly decreased in England and Wales since the date mentioned, but in 1896 the deaths from all forms of tuberculosis still equaled 10.5 out of every 100 total deaths.

At the beginning of the 20th century we find the mortality from smallpox insignificant compared with what it was at the beginning of the 19th century. In England and Wales in 1896 it was as low as 1.8 per million living. That is, there were only as many deaths from smallpox in 1896 among 2,000,000 people as there were among 1000 people in 1796. In other words, there was but one death in 1896 from smallpox where there were 2000 in 1796.

I have dwelt upon these facts with some detail because this tremendous reduction of the death-rate from one of the most serious diseases of mankind was accomplished by a study of one of the diseases of animals and the application of the knowledge thus obtained to human sanitation. This great advance in medical science and in the ability to prevent disease demonstrates the practical value of a knowledge of comparative pathology, and of a sincere effort to apply this knowledge in the formulation of measures for the control of the diseases of man.

Taking up the problem of tuberculosis, we find that the disease is caused by a bacillus so exacting in its conditions of growth that it can hardly be expected, in its virulent form, to multiply elsewhere than in the animal body or under the artificial environment supplied by the laboratory. The source of virulent tubercle bacilli is, therefore, either a person affected with tuberculosis, or one of the lower animals affected with that disease. When we consider the facts which have been demonstrated by the studies of comparative pathology, we can not but be impressed by the conclusion that there is a great culture ground and reservoir for tubercle bacilli outside of the human body, and existing principally in the bodies of the domesticated animals which supply some of the principal articles of human food. This well-known condition of affairs is, it seems to me, sufficient justification for a review of our knowledge of animal tuberculosis and the relation which it bears to the human form of the disease.

We must go abroad for most of the statistics of tuberculosis in animals, and while it is more frequent in European countries than here, we can learn from them as to the conditions which are likely to develop here as the animal population becomes more dense, and providing the spread of the infection remains practically unrestricted. The slaughter-house statistics of Prussia show 14.6 per cent. of the cattle and 2.14 per cent. of the swine to be tuberculous; in Saxony the percentage is 29.13 with cattle and 3.10 with swine; in the city of Leipsic the figures are 36.4 per cent. with cattle and 2.17 per cent. with swine (Siedamgrotzky). Of 20,850 animals in Belgium tested with tuberculin in 1896, 48.88 per cent. reacted (Stubbe). Of 25,439 tested in Denmark from 1893 to 1895, 49.3 per cent. reacted, and of 67,263 tested from 1896 to 1898, 32.8 per cent. reacted (Bang).

The British "Royal Commission appointed to inquire into the effect of food derived from tuberculous ani-

* Read at the Fifty-second Annual Meeting of the American Medical Association, in the Section on Hygiene and Sanitary Science, and approved for publication by the Executive Committee of the Section.

1. Vital Statistics, 3d Ed., p. 211.

2. Dr. Ransome, Lancet, July 11, 1896.

mals on human health," which reported in 1895, after giving the statistics of the Copenhagen slaughter-houses, where 17.7 per cent. of the oxen and cows were found tuberculous, and of the Berlin slaughter-houses, where 15.1 per cent. of such animals were tuberculous, continued as follows:

"There do not exist for the United Kingdom any records with which these can be compared. At Copenhagen and Berlin all the meat furnished to the towns is submitted to the inspection of experts. But we have reason to think that the facts about tuberculous animals would exhibit a broad resemblance to the foregoing, if such records could be obtained; not more different in degree, that is, than the difference between the Copenhagen and Berlin records, or than would be explained by variations in the practice of dealing with food animals in one and another country. Such few data as are to be had for the United Kingdom confirm this view." (Report 1, p. 11.)

An examination of 20,930 cattle in Great Britain, either slaughtered and examined postmortem or tested with tuberculin, showed 5441, or 26 per cent., affected with tuberculosis.

It is said that breeding cattle in Great Britain, carried tuberculosis to Denmark in the first half of the 19th century, and that it is now being carried in the same manner to Sweden and Norway (Bang). British cattle are also accused of carrying the disease to Argentine and spreading it among the cattle of that country (Sivori). There has also been discovered a large percentage of tuberculosis among the cattle of Victoria, Australia, where it was probably introduced in the same manner. Some of the largest breeding herds of Canada, also of British origin, have been found badly diseased, and 20 per cent. of the cattle offered for importation into the United States from Canada were found tuberculous.

In the United States our statistics are fragmentary, but sufficient to show that while the disease does not affect as large a proportion of our cattle as have been found affected in European countries, it is nevertheless widely distributed.

From a recent review by Drs. Russell and Hastings, of the Wisconsin Agricultural Experiment Station, of the tests of cattle for tuberculosis made in the United States, the following summary is presented:

	Number Tested.	No. Tuberculous.	Percent. Tuberculous.
Vermont	60,000	2,390	3.9
Massachusetts	24,685	12,443	50.0
Massachusetts, entire herds	4,093	1,080	26.4
Connecticut	6,300	.....	14.2
New York, 1894	947	66	6.9
New York, 1897-98	1,200	163	18.4
Pennsylvania	34,000	4,800	14.1
New Jersey	2,500	.....	21.4
Illinois, 1897-98	929	.....	12.0
Illinois, 1899	3,655	560	15.32
Michigan	.....	.....	13.0
Minnesota	3,430	.....	11.1
Iowa	873	122	13.8
Wisconsin—			
Experiment Station tests:			
Suspected herds	323	115	35.6
Non-suspected herds	935	84	9.0
State Veterinarian's tests:			
Suspected herds	588	191	32.5
Tests of local veterinarians under State Veterinarian on cattle intended for shipment to States requiring tuberculin certificate	3,421	76	2.2

(Bulletin No. 84, Wisconsin Agricultural Experiment Station, March, 1901.)

The State Veterinarian of Pennsylvania, Dr. Pearson, thinks that not over 2 per cent. of the cattle of that state are tuberculous, and probably if a general test of all the cattle of the other states mentioned were made we should find a very much smaller proportion tuberculous than is indicated by this tabular statement. The explanation of the high percentages that have been given is found in the fact that it has been, for the most part, suspected herds which have been tested. Admitting that the greater part of these percentages are too high, we still have revealed a condition which is worthy of our serious consideration.

The classes of cattle most affected are breeding animals and dairy stock. The beef cattle coming to our markets are still singularly free from tuberculosis. Of 4,841,166 cattle slaughtered in the year 1900 under federal inspection, but 5279, or 0.11 per cent. were sufficiently affected to cause the condemnation of any part of the carcass. Of 23,336,884 hogs similarly inspected, 5440 were sufficiently affected to cause condemnation of some part of the carcass. This is equal to .023 per cent., or slightly more than one-fifth the proportion found in beef cattle. It is scarcely necessary to add that there are certain lots of cattle and hogs encountered which are affected in much greater proportion than the general average just given.

With swine, tuberculosis is a disease generally contracted from the ingestion of infected food, and hence as the disease is allowed to spread among cattle it will become more frequent with the swine that eat the skimmilk, buttermilk and other waste products of the dairies. In these animals the disease is more acute and has a much greater tendency to generalization than with cattle, and consequently there is more danger of the meat becoming infected.

Tuberculosis is not pre-eminently a disease of poor, neglected, underfed scrub cattle, for the better class of cattle have suffered perhaps to a greater degree. Being constantly imported with pure-bred stock, it has been introduced into the best herds and has extended from them to the dairy herds and common cattle. It was said in an official investigation of one of the most noted Canadian herds, that wherever animals from that herd had been taken to improve the native stock, there tuberculosis was found among the farmers' cattle.

A brief list of infected herds which have been carefully studied may be useful in showing the extent to which the disease develops and the difficulty of building up a herd of good cattle under the best conditions and keeping it free from this disease:

	Number in herd.	Number. tuberc.	Percent. tuberc.
Soldiers' Home, Washington, D.C.	63	53	84
Mass. Agricultural College (Sec 1)	32	25	78
New Jersey Agr'l Exp't Station	42	25	60
Vermont " " "	33	21	64
Ohio " " "	30	14	46
Texas " " "	21	10	48
Wisconsin " " " (See 2)	30	26	86
Kansas Agricultural College	56	15	27
Government Hospital for Insane, Washington, D. C. (See 3)	102	79	77

Maine Agricultural Experiment Station: So badly diseased that entire herd was slaughtered in 1886.

1. This test was made in 1894; 18 animals had previously been killed in 1891-92, and 9 in 1893, to check the progress of the disease.

2. At the time of the test two animals had been isolated, one for chronic nasal discharge and one for indurated udder. Aside from these two there was no reason to suspect but that the herd was in good condition and as free from disease as the average.

3. Thirteen of the animals in this herd had recently been purchased and were all free from the disease. Excluding these, 90 per cent. of the herd was tuberculous.

There is little doubt but that tuberculosis in cattle and swine has been increasing in this country as well as in most other countries during recent years. This is shown by slaughter-house statistics and official inquiries. There appears to be no climate and no method of handling cattle which entirely arrests the spread of the disease. In the Argentine Republic it is held that the native cattle were free from it until it was introduced by the British breeds of beef cattle, and that it has spread among the native animals in proportion to the improved breeding stock which has been used (Sivori). In Australia and New Zealand the slaughter-house statistics, according to official reports, show as high as 3.5 to 4.5 per cent. of the adult cattle tuberculous. Considering that in these countries the cattle live in the open air and that the climate of Australia has been considered a remarkably favorable one for tuberculous people, we can not avoid the conclusion that our beef cattle, even on the western plains, are liable to have the disease propagated among them by the use of tuberculous breeding stock. At present the statistics of Buenos Ayres show almost three times the percentage of tuberculosis which is found in the average of our Federal meat inspection, while in Australia and New Zealand thirty to forty times our percentage has been reported.

These facts indicate the insidious and constant progress of this fatal disease among meat-producing animals in the most varied climates and under all conditions. The tuberculin tests made in Minnesota, Iowa, Nebraska, Kansas and California, and information received from Montana, Utah and some other states of the Rocky Mountain region, indicate that we have no climate in the United States so favorable that it may be relied upon to save our cattle from tuberculosis if the contagion is introduced among them.

The importance of maintaining the source of our food supply free from the contamination of any disease is no doubt appreciated by every physician; but when the disease which threatens it is communicable, fatal to man, and surpasses all other diseases in the mortality which it causes in the human race, are we likely to exaggerate its seriousness or to urge with too great insistence its effectual control?

This brings us to the question of the transmission of tuberculosis from animals to man, and here we find the most divergent opinions even among those who have given considerable attention to the subject. In the most superficial examination of the question, we must be impressed with the fact that in the domesticated animals we have a great breeding ground and reservoir for the bacilli of tuberculosis, which is at this time practically beyond the reach of the physician and health officer. Is this accumulation of tubercle bacilli dangerous to man when he works in the germ-laden air of the infected buildings, caring for the cattle, milking the cows, and cleaning the stables; or, above all, when he handles the infected products and takes them into his stomach as food?

It has been pointed out by investigators that there are slight differences in the morphologic and physiologic characters of the human and bovine tubercle bacillus, that the bovine bacillus is more virulent for experimental animals, and that the human bacillus is inoculated with difficulty upon cattle and usually produces a circumscribed and mild disease. From this there has been a tendency to conclude that human and bovine tuberculosis are distinct diseases and that animal tuberculosis may be neglected as a source of the human disease. This reasoning it appears to me is most unsafe and illogical.

There is probably no pathogenic microbe which undergoes greater modifications in the laboratory under various conditions of environment than the tubercle bacillus, and this is illustrated by the difficulty with which the first cultures from the diseased subject are obtained, and the ease with which it is grown upon a variety of media after it has been gradually accustomed to the changed conditions of existence. If it so readily varies its requirements in the laboratory, is it not reasonable to suppose that it may in an equally short period be modified to as great or to a greater extent in the bodies of different animals? And, if the bovine bacillus is more virulent for cattle, sheep, goats, swine, guinea-pigs and rabbits than is the human bacillus, may it not also be more virulent for man?

The frequent exposure of man to the bovine bacillus is demonstrated beyond doubt. That the air of infected cow stables is a bearer of the bacillus is abundantly proved by the spread of the disease among the cattle in such stables, since postmortem examination proves the majority of infections among cows are through the respiratory organs. The muscular tissues of animals probably do not contain the bacilli in sufficient numbers to be infective except in the case of generalized tuberculosis. The cases of generalized tuberculosis are not rare. In Germany, out of 482,501 tuberculous cattle, 12,017, or 2.8 per cent., were condemned for generalized tuberculosis (Siedamgrotzky); and Nocard states that of 43,000 cases 10.7 were generalized. In addition to the distribution of the bacilli through the blood in generalized tuberculosis, it has been shown that there is considerable danger of the flesh of other advanced cases being infected by contact with the diseased organs and by smearing with tuberculous material from the knives of butchers (Report Royal Commission, Great Britain, 1895, p. 14).

The infectiousness of milk from tuberculous cows has been frequently proved by microscopic examination, by inoculation and by feeding experiments. The one point about which there has been some difference of opinion is as to whether a cow with a clinically healthy udder can give infectious milk. It is generally admitted from slaughter-house statistics that from 1 to 2 per cent. of tuberculous cows have tubercular deposits in the udder. These statistics are not absolutely accurate because they are not usually made with that thoroughness which is required to discover all of the minute lesions, and also because in many cases while the number of tuberculous udders is given the total number of tuberculous animals includes calves, and sometimes bulls and steers. The percentage of cases in which the udder is affected must therefore actually be greater than the figures just given.

If we could be certain that not more than one or two animals among 100 tuberculous cows would give infectious milk, that fact would be somewhat reassuring; although, as Virchow said in his address before the International Tuberculosis Congress of Berlin in 1899, the tubercular lesions may directly involve the milk ducts, in which case thousands of bacilli may be carried in the milk, and a single cow in such condition may be suf-

ficient to infect the people of a whole village, or even more (Report, p. 349).

Careful researches of competent investigators indicate, however, that a much larger proportion of tuberculous cows yield infectious milk than is admitted to have diseased udders. Bollinger, Stein, Bang, Hirschberger, Ernst, Smith and Schroeder, Rabinowitsch and Kempner, Ravenel, Gehrmann and Nörgaard have all found the milk infectious when no lesions could be discovered in the udder. These investigations cover a considerable number of cows, and as infectious milk was obtained in from 6.5 per cent. to 66.6 per cent. of the animals, they prove either that the udder is affected in a much larger proportion of cases than has been admitted or that many cows with sound udders excrete tubercle bacilli in the milk.

It is not probable that so many investigators would overlook tuberculosis of the udder if it existed, and reach a faulty conclusion, but if we admit that this did occur, we must also admit that such an error is much more likely to happen in the ordinary slaughter-house examinations, and that consequently the frequency of tuberculosis of the mammary glands should be placed at 10, 15 or 20 per cent. of the diseased animals, in stead of 1 or 2 per cent. as at present. Dismissing the question as to whether the udder was affected in all of these cases, the practical conclusion of the sanitarian is not changed, and that is that the milk is infectious with a large proportion of tuberculous cows and that with many of these no disease of the udder can be found in the living animal.

The milk of such animals produces tuberculosis in guinea-pigs, swine and calves when fed to them; will it have the same effect when taken into the digestive apparatus of man? In other words, is bovine tuberculosis communicable to man? There are many cases on record indicating this communicability, but I have space to refer briefly to but a very few.

Two veterinarians of Pennsylvania have been reported to me as infected by making postmortem examinations on tuberculous cows. In both, local tuberculosis developed and the tubercle bacilli were demonstrated in the excised tissue. In another similar case in the same state, the character of the lesion was demonstrated by the inoculation of guinea-pigs.[3] L. Pfeiffer cites the case of Veterinarian Moses, 34 years old, of healthy family, and personally in good health, who pricked his left thumb in making an autopsy on a tuberculous cow. The point of the knife probably penetrated into the articulation of the first and second phalanges. The puncture healed without suppuration, but at the end of six months there formed at the seat of the cicatrix a cutaneous tubercle, and the joint was removed. Soon afterward the patient began to cough and died of phthisis eighteen months after the accident. On opening the articulation of the thumb it was found filled with caseous masses, extraordinarily rich in bacilli. A similar case in the United States was brought to my attention by Dr. M. P. Ravenel. The case occurred in the practice of Dr. M. B. Hartzell and was partially reported to this Association in June, 1897. The patient, a man in excellent health and weighing 175 pounds, was employed by a railroad company to work upon cars used for the transportation of cattle. He was wounded upon the back of the hand by a piece of broken woodwork of a car, and typical verrucous tuberculosis developed locally. This was apparently successfully treated by Dr. Hartzell. Within a year the patient's general health changed greatly; he was emaciated, had a persistent and frequent cough with abundant expectoration, and there was decided dulness at the left apex with numerous râles. Death soon resulted from general tuberculosis. A very interesting case of "primary subcutaneous tuberculosis," caused by the topical application of cream, was reported by Dr. A. Grothan.[4] The family was using the milk of one cow only, and inoculations of two rabbits with milk and cream from this cow caused tuberculosis in each.

These are very clear cases and sufficient to demonstrate the communicability of bovine tuberculosis to man, and they indicate that bacilli from a bovine source are at least as virulent for man as are bacilli from a human subject.

Now, we are asked, if bovine tuberculosis is dangerous to man, and is increasing, how is it that consumption or phthisis is decreasing? It appears to me quite conceivable that the conditions of life, and above all of sanitation, may be so improved that their influence will more than counteract the increasing danger from the extension of bovine tuberculosis. But quite aside from this, it must be admitted that phthisis, or tuberculosis of the lungs, is usually contracted by inhaling the infection, while if the disease is communicated through the food it would probably take some other form (tabes mesenterica, tubercular meningitis, etc.). It is clear, then, that in estimating the effect of increasing bovine tuberculosis we must make a distinction between phthisis and other forms of tubercular disease.

Sir Richard Thorne-Thorne, in the Harben Lectures for 1898, has made this very clear. He shows from the statistics of England and Wales that between the periods 1851-1860 and 1891-1895 there has been a reduction of the mortality at all ages from phthisis of 45.4 per cent.; while from all forms of tuberculosis the reduction has been distinctly less, viz., 39.1 per cent. Taking that form of disease registered under the name of "tabes mesenterica," the reduction at all ages has been but 8.5 per cent.; under five years of age the reduction has been but 3 per cent., while under one year of age there has been an actual increase of 27.7 per cent. This is the milk-drinking age, and the increase of the mortality is very significant at a time when phthisis has been so remarkably reduced. Making all proper allowances for errors in diagnosis among the returns for tabes mesenterica, it is still apparent that there are altogether different influences at work in the causation of this disease from what are usual with phthisis.

The conclusions which naturally follow from these statistics are so different from what has been generally held, that numerous attempts have been made to counteract them. Dr. George F. Still[5] recorded "Observations on the Morbid Anatomy of Tuberculosis in Childhood," in which he gave a résumé of the results of 769 consecutive autopsies on children. Of these 269 presented lesions of tuberculosis, but death was due in 43 of these to some other cause. The channels of infection in the 269 cases were as follows: Lung 105, intestine 53, ear 9, bones or joints 5, while the remainder were more or less uncertain. That is, the intestinal infections were to the others as 1 to 2.1. With the class of cases where death was caused by some other disease and where the tuberculosis was either arrested in an early stage or had not progressed beyond the initial

3. Ravenel: Phila. Med. Jour., July 21, 1900.

4. Omaha Clinic, February, 1896.

5. Brit. Med. Jour., Aug. 19, 1899, p. 455.

stage, affording almost indisputable evidence of the method of infection, the infections were by the lung 26, by the intestine 16, by the ear 1. Here the intestinal infections were to the others as 1 to 1.7. In the English statistics the cases of tabes mesenterica in children five years and under are to the other forms of tuberculosis as 1 to 1.6. Dr. Still's observations are, therefore, a singular endorsement of the accuracy of the returns under the name of tabes mesenterica, and as the ages of the children covered by his autopsies were twelve years and under, he has really found a larger percentage of intestinal infection than is indicated by the statistics.

Dr. J. Walter Carr also referred to statistics of necropsies on tuberculous children at the Victoria Hospital.[6] He found 79 in which the disease most probably started in the chest, and 20 in which it seemed to have begun in the abdomen. Here the relation between the two forms of infection is as 1 to 4. In 26 children of early or limited tuberculosis, the thorax was alone affected in 12 cases, the abdomen in 7, being in the proportion of 1 to 1.7. Of 53 tuberculous children under two years of age the disease most probably began in the chest in 43 and in only 5 certainly in the abdomen, the proportion in this case being as 1 to 8.4. Out of 27 children over five years of age, the disease began in the chest in 12, in the abdomen in 6, the relation being as 1 to 2.

These statistics being all from English sources, are fairly comparable, and it appears to me they sustain Dr. Thorne's contention that the returns in England of tabes mesenterica represent with fair accuracy the abdominal tuberculosis of children.

Bollinger, in his address at the International Tuberculosis Congress of Berlin, in 1899, quoted with approval the record of autopsies by Heller (Kiel) of 248 tuberculous children which showed in 45.5 per cent. of the cases tuberculosis of the mesenteric glands. From these it was concluded that milk played a leading rôle in the so-called transmitted tuberculosis of children.

It is plain from what has been said, without quoting further statistics, that in some countries where bovine tuberculosis is very frequent, there is also great frequency of tuberculosis in children. Bollinger concludes that "although the tuberculosis of cattle and swine do not stand in the first line as source and starting-point of human tuberculosis, nevertheless—considering their enormous distribution and progressive additions, and the great danger from the ingestion of the milk of tuberculous cows—they are certainly for humanity the most important and most dangerous of all animal plagues and deserve the most earnest attention from the sanitarian and the state."

Admitting the subordinate rôle played by digestive infection in human tuberculosis, admitting that in England there is but one such case to nine cases of all forms of tuberculosis, still the matter is one deserving the most careful consideration of the sanitarian. But the harm does not stop with the cases directly infected by food, since these may in turn cause secondary infections and thus give rise to a series of unlimited extent.

It is not my purpose to exaggerate in the least the danger from animal tuberculosis, but there has unfortunately been a tendency in recent years to make light of this danger. Let us take facts as our guide and not be unduly influenced by personal opinions. If it can be shown, as I believe it has been, that animal tuberculosis may be communicated to man, then the presence of vast numbers of tuberculous animals in a country must be looked upon as a source of danger and one which it is our duty, as sanitarians and as citizens, to do our utmost to abolish.

6. Brit. Med. Jour., Sept. 2, 1899, p. 626.

RELATIONS OF HYPERCHLORHYDRIA TO "BILIOUS ATTACKS," SOME FORMS OF ECZEMA, GOUT, AND MUSCULAR RHEUMATISM. — PRELIMINARY REPORT.*

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Hyperacidity of the stomach is a common disturbance of secretion. The frequency of its occurrence is very difficult to determine, as there is no doubt that a moderate excessive secretion of hydrochloric acid may take place without producing subjective symptoms. I have on several occasions examined the gastric contents of patients with apparently normal digestion and found excess of hydrochloric acid, although in some of them there was a history of "bilious attacks," which were probably attacks of acute hyperacidity. It seems to me, therefore, that the gastric distress which is present in cases of hyperacidity is more or less due to the hyperesthesia of the mucous membrane of the stomach as well as to the excessive acid contents. This opinion is supported by the fact that in many cases of hyperchlorhydria pain comes on in a few minutes after the ingestion of food of any form. The commingling of these two neuroses—hyperchlorhydria and hyperesthesia gastrica—makes an investigation into the relations of the former to "bilious attacks," eczema, muscular rheumatism and gout a very difficult one, as I can not help but think that a general irritable condition of the gastric nerves must produce some changes in the sympathetic and cerebrospinal centers, which would no doubt lead or tend to lead to diseases in other organs. The investigation is also difficult because even if we find hyperchlorhydria associated with diseases of some other organ we have still to determine which was diseased primarily, or whether both pathologic conditions were not secondary to a disease in some other organ of the body, such as uremia, uratemia, nicotin poisoning, neurasthenia, etc.

My attention was first called to the subject about two years ago. I observed the internal treatment, both dietetic and medicinal, which I was accustomed to use in cases of hyperchlorhydria, was approximately the same as that which I was using in some forms of acute eczema and in both cases it gave very satisfactory results. I then determined to investigate the relations of these two diseases and latterly I have extended the research to the whole subject-matter of my paper.

Before I give results of my observations, I wish to discuss and offer some suggestions as to how hyperchlorhydria may cause disease in other organs of the body. We know that the amount of blood in the portal system increases during the process of digestion. I think I am safe in stating that the more active the secretion of the stomach and intestines the greater the inflow of blood to the gastro-intestinal area. All the

* Read before Ontario Medical Society, June, 1901.

blood which enters the portal system must pass through the liver and hence the hyperemia of the stomach which occurs in hyperchlorhydria would tend to produce active congestion of the liver. The same pathologic condition might also be produced by the absorption of the toxic substances, the products of the disturbed digestion, produced by the hyperchlorhydria. Thus we know that an excessive acid secretion interferes with the digestion of starch and does not interfere with at least some forms of fermentation. I have frequently observed considerable quantity of yeasts in gastric contents with normal hydrochloric acidity or even hyperacidity. I do not think that the secretion of hydrochloric acid bore any causal relation to the presence of yeast, as the growth of the latter no doubt resulted from the retention of food. If yeast can grow in the presence of HCl, then it is probable that the latter will not have any deterrent action affecting the growth of some other forms of germs in presence of a suitable pabulum, and in all cases substances with variable degrees of toxicity would be produced and gain admittance to the portal circulation. Fermentation and putrefaction in the intestines are of frequent occurrence in cases of hyperchlorhydria and probably result from the inflowing of the highly acid chyme containing large quantities of unchanged starch. The toxic substance thus produced would also be carried to the liver. We should also remember that these poisonous chemical bodies may not only cause active congestion of the liver but, changed or unchanged in constitution, pass on into the general circulation to produce disease in other organs. If active congestion of the liver results from the absorption of toxic substance from the stomach and intestines as well as from an excessive inflow of blood to the portal circulation, we have still to discuss the effects of pathologic hyperemia of the liver on the system in general. We know that the liver has varied and complex functions. It is at the same time a digestive, an excretory and assimilative organ, and it would be quite natural for these functions to be disturbed by an excessive inflow of blood laden with toxic substances or even with an excess of food products. Defective metabolism might lead to an excess of urates in the blood and I believe that this is the case in hyperchlorhydria.

HYPERCHLORHYDRIA AND "BILIOUS ATTACKS."

When a patient complains of such subjective symptoms as headache, nausea, pain and discomfort in the region of the stomach, acid eructations, bitter taste in the mouth, disinclination to work, the diagnosis of bilious attacks is frequently made, particularly if the symptoms follow excessive eating or drinking. According to my experience, these attacks are very frequent in cases of chronic hyperchlorhydria, although they are not infrequent in patients who do not give a history of chronic indigestion. With the object of determining the activity of the secretion of HCl in this condition I produced emesis in a patient with the above symptoms one hour and a half after partaking of a breakfast of three pieces of toast and a cup of coffee and examined the vomit. The total acidity and free HCl were 72 and 32 respectively, showing the presence of hyperchlorhydria. The patient had suffered from severe similar attacks previously, but they were of short duration, and in the intervals he had fairly good digestion. I think, therefore, that this was a case of acute hyperchlorhydria due to irritation of food which he had eaten a day or two previously, or an exacerbation of a mild form of hyperchlorhydria.

RELATIONS OF HYPERCHLORHYDRIA AND SOME FORMS OF ECZEMA.

That hyperacidity of the stomach bears some casual relation to some types of eczema I have no doubt. I am equally confident that there are cases of eczema occurring in persons with normal digestions. According to my experience symptoms of indigestion are of frequent occurrence in eczema, and are usually of the character that indicates hyperchlorhydria. In addition, I have examined the gastric contents of six cases of eczema with symptoms of dyspepsia; in five of these there was an excess of HCl in the gastric contents, the remaining case having normal acidity. Moreover, the internal treatment of acute irritable eczema which usually gives me the best results is about the same as that which I find most successful in cases of hyperchlorhydria.

I am unable to say in what manner the eczema is produced by the hyperchlorhydria, but I have some data which point to an excess of uric acid in with blood as the direct causative agent, and I have suggested in a previous part of my paper that the hyperchlorhydria may be the cause of the uratemia. However, I shall content myself for the present by reporting short clinical histories of some cases in practice which appear to indicate a relationship between these diseases.

CASE 1.—H. M., aged 42, market gardener, consulted me in the spring of 1900 on account of an eruption on his face, forearms, backs of hands, and fingers. His previous health had been fairly good, although he had suffered considerably from indigestion for two years before he came to me. He complained of heartburn, heaviness and slight pain after eating. His tongue was heavily coated and his bowels were constipated. The appetite was fairly good. The eruption on account of which he sought advice began two weeks previously on the backs of the hands; it then extended to the fingers and forearms, and lastly to the face. The rash had all the characters of acute vesicular eczema. I gave the patient a test breakfast and an analysis of the gastric contents revealed the presence of hyperchlorhydria. The patient was treated as follows: a mixture of black wash and calamin lotion was applied to the eczematous patches and the diet and internal medicine were the same as those indicated in hyperchlorhydria. Under this treatment he made a rapid and complete recovery from both the eczema and indigestion.

CASE 2.—A. B., physician, for twenty years has had eczema and for as long as he can remember has suffered at times from indigestion. The eczema began on scalp and those parts of the face covered with beard. The first attack extended to nearly every part of the surface of body. The eczematous patches of the surface were red and scaling, and occasionally moist. When he was a boy if he ate pickles, lemons, or other acid substances he suffered from heartburn, but of late years the indigestion has been at times much more severe in character. When I examined the patient last autumn, I found that the scalp, neck, trunk, and popliteal spaces were the seats of the eczematous patches. A few of the diseased areas were moist, but most of them were dry and scaly. The patches on the trunk were of various sizes with well-defined borders and had all the objective signs of seborrheic eczema or seborrhea corporis, but the subjective symptoms were somewhat more severe than those which are generally present in cases of seborrheic eczema.

As the patient was suffering considerably from indigestion I gave him a test breakfast and analyzed the gastric contents. The total acidity and free HCl were 120 and 73 respectively; mucus slightly increased; digestion of starch very poor. The patient was therefore given an internal treatment suitable for hyperchlorhydria and an external treatment suitable for seborrheic eczema. We found that the lesions were very irrit-

able. A mild resorcin and sulphur ointment, usually so effective in seborrheic eczema, was not tolerated; but an ointment containing 8 grains of ammoniated mercury and 1 ounce of zinc oxid to an ounce of cold cream appeared to be soothing to the affected parts. Under this treatment a rapid improvement in the condition of the patient took place and two months later the rash had completely disappeared. I am of the opinion, therefore, that this was a case of seborrheic eczema aggravated by the irritable condition of the stomach.

CASE 3.—S. W., male, aged 27, came to see me on June 10, 1901. He told me that he had suffered from eczema of the face for over two years. On inquiring I also ascertained that he frequently suffered from heartburn, pain after eating, belching and other symptoms of indigestion. His face and ears were nearly covered with red scaly patches and his left cheek was considerably swollen. He also suffered from seborrhea of the scalp and alopecia furfuracea. I considered this a case of seborrheic eczema aggravated by hyperchlorhydria and prescribed accordingly. The rapid disappearance of the edema and the marked improvement in the scaly patches appear to support my diagnosis.

CASE 4.—A woman, aged 50, came to see me in December, 1900, complaining of an eruption on the backs of her hands. She was full-blooded and had had her menopause about three years previously. She said that she had had indigestion for years, but the symptoms, discomfort after eating, belching, acid eructations, did not worry her very much as her appetite was fair and her general health was good. An examination of the lesions convinced me that it was a case of acute weeping eczema, and analysis of the gastric contents revealed the presence of hyperchlorhydria. The stomach was not displaced. I estimated the quantity of uric acid passed in a day to be 12.5 grains. I tried Garrod's test for urie acid in the blood and obtained a positive result.

The treatment of this patient was very similar to Case 1. A mixture of black wash and calamin lotion was at first applied to hands. When the parts became dry I used Lassar's paste. Internally I gave an alkalin mixture and a light non-irritating diet.

CASE 5.—A. T., female, aged 40, came to my skin clinic at St. Michael's Hospital, June 5. She complained of an eruption on her thighs and face. She stated that the rash began on her thighs two years previously and about the same time she also began to suffer from indigestion—pain after eating, acid eructations, etc. Her digestion had improved of late, but the eruption was still on her thighs and had recently extended to her face.

An examination of the patient revealed the presence of scaly, eczematous patches on the thighs and an edematous erythematous eczema on the face. The blood was tested for uric acid by means of the thread-test and a marked deposit of uric acid crystals was obtained The patient was given a mixture of potassium bicarbonate, sodium salicylate, tincture of nux vomica and fluid extract of cascara sagrada aromatica before meals and a diet of bread, butter, milk and rice. In five days the eczema had completely disappeared from her face and in two weeks had nearly disappeared from her thighs. I then ordered a weak tar ointment, which in a few days effected a cure.

RELATIONS OF HYPERCHLORHYDRIA AND GOUT.

Disorders of the digestive system are of frequent occurrence in gout. All writers on the subject agree that excessive eating and drinking are important etiologic factors. They also agree that gout frequently gives rise to indigestion. "Acidity" is a common symptom in gouty subjects, and it has hitherto been held that the acid in the gastric contents was usually due to organic acids and not to hydrochloric acid. I believe that a thorough investigation of the subject would prove that this opinion is incorrect. We know that a similar erroneous idea was until recently held with regard to all cases of gastric indigestion. Deficiency and not excess of gastric secretion was said to be usually present in cases of dyspepsia. Even so distinguished a writer as Lauder Brunton, in his article in Clifford Allbutt's "System of Medicine," holds the same view. I know that this opinion is incorrect with regard to the dyspeptics in Toronto. During the last three years I must have examined the gastric contents of at least 300 patients and hyperchlorhydria was much more frequently present than hypochlorhydria.

The investigation of the relations of hyperchlorhydria to gout is somewhat difficult in this country, as according to my experience podagra is uncommon, while irregular gout is very common, but difficult to diagnose, particularly when not preceded by a history of gout in the foot. I have only examined the gastric contents of one patient with a history of regular gout, and he had marked hyperchlorhydria; but the subjective symptoms, referred to the stomach, which have been described to me by gouty patients, and which are generally held to be characteristic of the disease, are very similar to those of hyperchlorhydria. Again the etiologies resemble each other in some particulars. We know that excessive eating and daily use of alcoholic liquors in those who lead sedentary lives dispose to gout, and these are the same habits which are active agents in the production of hyperchlorhydria and hyperesthenic gastritis. It seems to me, therefore, that the relation between the two diseases is a subject worthy of investigation. If uratemia is shown to be present in cases of hyperchlorhydria then at least one important factor in the etiology of gout will have been determined.

RELATION OF HYPERCHLORHYDRIA AND MUSCULAR RHEUMATISM.

We know very little about the etiology of muscular rheumatism. Exposure to cold is no doubt a contributing factor. Clinical experience teaches us that muscular rheumatism and gout are in some way related. It is probable, therefore, that patients with muscular rheumatism may suffer from a mild degree of uratemia.

In regard to relations of hyperchlorhydria and muscular rheumatism, I have observed that they are frequently associated, but whether the muscular rheumatism is the result of the hyperchlorhydria, I am at the present unable to say.

URIC ACID INFLAMMATION OF THE MIDDLE EAR, MEMBRANA TYMPANI AND MASTOID.

CORNELIUS WILLIAMS, M.D.
ST. PAUL, MINN.

I maintain that nine-tenths of all the inflammations of the ear and mastoid, as observed in the Northwest, are due to uric acid poisoning. In using this term, "uric acid poisoning," I mean to include its various compounds, and purely for convenience sake the several products of insufficient digestion as well as some results of faulty tissue metabolism.

Uric acid inflammation of the ear occurs in summer and winter, but most frequently in late winter and early spring, and affects persons of all ages—babies in arms and the old as well. Those affected, according to my observation, have always been persons who ate nitrogenous food in excess of their requirements. The adults were meat-eaters, often almost to the exclusion of vegetables, and the babies were bottle-fed. Further, there is generally a distinct history of gout or rheumatism, but more especially intestinal disorder due

to fermentation or putrefaction. The following may serve as a type of this class of disease: The patient has not felt very well for a day or so; there is apt to have been some alimentary disturbance; he has had chilly sensations, or even a distinct chill; there is always elevation of the temperature, sometimes 103 or more and sometimes the fever is very slight; the urine is scant and high-colored; the patient is apt to be awakened in the night by a pain in the ear, more or less considerable. If the patient is seen early, the surgeon finds, always at the junction of the membrane with the external auditory canal, one or more blisters; these may be in number from one to seven or eight, nearly transparent or blood-colored. The site of election is the posterior and superior junction of the membrana tympani and external auditory canal. In mild cases the membrane is reddened only, in the immediate vicinity of the blisters; usually when seen the sharp pain will have ceased, leaving only the sensation of discomfort, if the crop of vesicles has fully formed; though several successive crops may appear. If the constitutional derangement has been very considerable, the blisters involve more of the tissue of the membrana tympani, and there is usually a livid red coloration, with some general swelling of the attic membrane, with more constant aching. If the disease is what I call of the third degree, not only is there great swelling of the attic membrane and cells, but there is extravasation and swelling of the skin of the external canal, reaching in many instances even to the external meatus. The pain is excruciating; the tongue is coated; there is apt to be high fever and the whole side of the head is painful. The uranalysis discloses a condition identical with that found in acute rheumatic inflammations of other parts of the body. In this form of the disease, even in the very beginning, there is apt to be tenderness over the mastoid, at first confined to the tip and later involving the whole bone; this tenderness may remain, or it may, under appropriate treatment, disappear with a subsidence of the other inflammatory conditions. In a certain percentage of cases, however, the tenderness increases, to be followed later by a well-marked edema and other accompaniments of mastoiditis, if it has not been operated on before. I have, upon operating in very recent cases, in which tenderness of the mastoid had been prominent for a few days only, found pus in the mastoid cells and none in the antrum. I am of the opinion that the invasion occurred from without inward, and in time there would have been an occupation of the entire bone. The inflammation may go on to rapid involvement of the entire petrous portion of the temporal bone, with very little or no discharge from the ear. There is no sore throat or acute infection of the nasopharyngeal space. There is, however, not infrequently pain of a rheumatic nature in other parts of the body, and there may be very serious involvement of other organs; here is such a case:

Baby X. had an acute inflammation of both membranes (with an acute affection of the hip joint); there was very great swelling, so that the external auditory canal was closed on both sides; there was no discharge of pus, but a constant oozing of blood and bloody serum. In a day or so the gums became much inflamed and bled freely, simulating mercurial gingivitis. My confrère, Dr. Gillette, although he later made a diagnosis of inherited syphilis, had not at that time given any mercury. This child entirely recovered; having among other things, received iodid of potassium, but there is no evidence of inherited syphilis apparent. It is now ten years or more since the illness described.

There is a form of the disease, a subacute inflammation of the attic; not much pain, some redness and a little swelling, a sensation of fulness and discomfort, especially if the patient lie on that side.

The treatment should consist in the very free exhibition of salicylic acid in some form, alone or in combination, opium in full and sufficient doses; free incision of the attic membrane and of all blebs, if the disease is progressing. The blebs or the attic would, however, better be left alone if the pain is less than it had been and the local manifestations apparently at a standstill; there being comparatively little pain, or no very great tension.

If, however, the inflammation seems to be increasing and the pain very intense, and especially if it is continuous, patient should be anesthetized and all blisters, together with the attic, opened freely. Mere tenderness of the tip of the mastoid, I hold to be insufficient to warrant operation on the mastoid, but the moment there is marked tenderness over the upper part of the process, even before there is bulging of the posterior superior wall of the canal, I deem it most prudent to operate, and regardless of the fact that the active inflammation may have existed for a short time only.

Generally it is better to enter the antrum, though in many cases pus is found only in the external cells, and a majority of cases do well if only these are cleared out. The middle ear should not be entered during the operation. Even when the antrum itself is not opened, the discharge, as a rule, very soon ceases; the swelling of the tympanic membrane subsides and the patient rapidly recovers, with hearing but little impaired. I think that the dental engine and a set of appropriate burrs are by all means the proper instruments for operations on the mastoid. Except for the beginning, the burrs should not be very sharp, for then there is no danger of wounding the dura or the membranous wall of a sinus. The patient may be up and about at the end of a week, and in a month, if things go well, the wound of the operation is closed.

To recapitulate, I believe in the gouty or rheumatic nature of the greater number of acute and even chronic inflammations of the ear, and that they should all receive appropriate constitutional treatment. Though I use ice and other local measures freely, I think that no case will do so well without as with the salicylates. I rather prefer the powdered opium, and insist on its exhibition in doses sufficient to relieve the pain, which in itself goes far toward curing the disease. If, however, in spite of this treatment, the mastoid should become involved, I believe that it should be opened at once.

Finally, while I know that the statement will provoke a smile, I believe that chronic catarrhal otitis media is of uric acid origin and should be so treated.

Extreme Obesity.—Erastus H. Lewis, of Jersey City, N. J., died August 17, aged 57. He weighed 440 pounds when he died, and often prided himself on once tipping the scales at 520 pounds. His occupation was at first that of a train dispatcher for the Erie Railroad, but this he was obliged to resign on account of his unwieldiness and ignorance of telegraphy. When first elected president of the Fat Men's Club the combined weight of forty of its members reached nearly five tons. A diseased liver is given as the cause of his death.

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ANTITOXIC AND BACTERICIDAL IMMUNITY.

The modern teachings in immunity distinguish clearly between antitoxic and bactericidal actions. Antitoxins render the toxins harmless by continuing with them, but have no influence upon the corresponding bacteria, whereas bactericidal substances destroy living bacteria without affecting the toxins of the latter. By combining with the toxin the antitoxin prevents the toxin from uniting with those cells in the body for which it is poisonous. By experiment Ehrlich and his pupils have shown that toxins have at least two groups or chains of molecules, one toxophorous which carries the active toxin, and one haptophorous which has a high degree of affinity for the antitoxin and also for certain animal cells. According to Ehrlich's lateral chain theory of antitoxic immunity and healing, the antitoxins of the serum of immune organisms are simply molecular groups, loosened from the cells, and endowed with affinity for the haptophorous group of the corresponding toxin. Hence, antitoxic therapy simply resolves itself into a struggle of affinity between the haptophorous chain of the toxin and the cells on one hand and the antitoxin on the other. The toxin may have greater affinity for the cells; here, antitoxin is useless. Or the affinity for cell and antitoxin may be equal, and now the toxin is bound by the antitoxin in the blood serum. Finally, the toxin may have greater affinity for the antitoxin, and in this case the curative power of the latter will be greatest. In these hypothetic considerations lie the reasons for the search for animals whose antitoxin has the greatest affinity for a given toxin.

In the case of bactericidal immunity the conditions are entirely different. Normal extravascular serum has bactericidal powers, and the serum of animals immunized against certain bacteria, for example, the comma bacillus, the typhoid bacillus, etc., acquire specific bactericidal powers, which at first seem to be active only within the organism, but which it was soon found could destroy the corresponding bacteria outside the body as well. The bacteriolytic action of immune serum is currently known as Pfeiffer's phenomenon. The study of hemolytic serums has furthered greatly our knowledge of this form of action, thanks to the investigations of Bordet, Ehrlich and others. As has been pointed out frequently in these columns, the serum of an animal treated by the injection of the blood of an animal of another species acquires specific solvent powers with respect to the red corpuscles of the blood injected. It has been learned that this power depends on two substances, one of which is present normally and whose activity is destroyed by heating to 55 C. for 15 or 30 minutes, while the second is not affected by heat. These two substances have received various names. The first, which is destroyed by heat, is known as alexin and as complement, the second as immune body, *substance sensibilatrice*. The immune body, which represents the specificness of the process, links the complement to the corpuscle or bacterium, as the case may be, which is then dissolved by a fermentative process. Without this immune body, whatever it is, the complement can not act. These general facts are applicable to bacteriolysis and cytolysis alike. Baumgarten, Fischer and others have endeavored to show that the bactericidal action of serums does not depend upon any special substances like these, but upon osmotic disturbances and other purely physical factors. In the following is given a brief recapitulation of recent work by Wassermann[1] in an attempt to lay bare more of the secrets of serum actions. If hemolytic action depend on the two bodies referred to, the exclusion or neutralization of either should suspend hemolysis. In his experiments to prove the truth of this statement, Wassermann injected rabbits repeatedly under the skin with fresh guinea-pig's serum, which normally dissolves the red cells of the rabbit. In the serum of the rabbits so treated there forms an anti-complement that arrests the action of this substance in the guinea-pig's serum and thus prevents hemolysis in suitable mixtures. Injections of suspensions of typhoid bacilli mixed with 3 c.cm. anti-complement serum caused the prompt death of guinea-pigs, whereas similar injections alone, or mixed with normal rabbit's serum heated to 55 C. did not cause death, showing that the complements have a direct effect upon typhoid infections of guinea-pigs. Anti-complement reduces greatly their natural resistance. Similar results were noted in like experiments with the staphylococcus aureus. But not all kinds of natural immunity is dependent upon complement, because in similar experiments with anti-complement and microbes that are non-pathogenic for guinea-pigs and other animals Wassermann found that the anti-complement had no noticeable effect.

It is generally taught that complements (alexins) are derived from leucocytes, based almost wholly upon experiments with leucocytes outside the body. Wassermann reasoned that this problem would be solved easily if it were possible to produce anti-complements by the injection leucocytes thoroughly freed from every trace of serum. Guinea-pigs injected with leucocytes from rabbits developed distinct anti-complements with respect to the complements of the rabbit. Hence, leucocytes must be a source of complements, because they give rise to anti-complements in the living body, but they are

1. Zeitschr. f. Hyg. u. Infektionskr., 1901, xxxviii, 173-204.

apparently not the only source. There is room for much further investigation in regard to this point.

In the case of artificial immunity, Wassermann very clearly shows that anti-complement arrests promptly the curative and preventive actions of immune typhoid serum—complement is necessary for its activity unless it be given in enormous doses. He further shows that complements have no influence on antitoxic serum. By similarly planned experiments it could be shown that animals actively immunized against typhoid lose their immunity under the influence of anti-complement. Furthermore, that artificial resistance against certain infections produced by the injection of numerous non-specific substances, such as salt solution, urine, bouillon, blood serum, nuclein solution, etc., depends upon the active flow of complements towards the point of injection. Wassermann also shows that serum may contain different complements with distinct affinities, although certain kinds are common to most of the mammals so far examined.

The various forms of action here discussed are hardly explainable on the score of osmotic and nutritive disturbance as urged by Baumgarten and in others in the case of the bactericidal action of serum outside the body. The forms of activity seem to be more purely chemical or fermentative. Indeed, the general opinion is that complement or alexin is capable of digesting albumins in general.

THE PRESENCE OF TYPHOID BACILLI IN THE BLOOD.

Paradoxical though it may seem it is nevertheless a fact that the exact diagnosis of a disease becomes the more difficult as the knowledge concerning it becomes the more complete and the more refined. This is owing to the circumstance that the evidence upon which a diagnosis is based is more critically scrutinized, and must therefore be most convincing, both quantitatively and qualitatively. It is not so long ago that a complex of symptoms comprising malaise, nose-bleed, headache, diarrhea, continued fever and rose-spots was sufficient upon which to venture a diagnosis of typhoid fever, and mistake, while not common, was not rare, both by inclusion and by exclusion; but an increasing experience has taught that the symptoms named may be present in the absence of typhoid fever and absent in the presence of typhoid fever.

With the discovery of the typhoid bacillus, and the recognition of its pathogenic activity, it was believed that examination of the intestinal discharges would yield conclusive diagnostic information, but the isolation of the organism proved to be a matter of no small difficulty. Then, when the Gruber-Widal test was proposed, it was hoped that exactitude in diagnosis was reached, but this has proved to be measurably so only; and the reaction does not appear until the end of the first week, or even later, while in some cases of typhoid fever it escapes detection altogether, and in others it may be present when the existing disease is not typhoid fever. Typhoid bacilli have been found also in the urine and in the blood, in the former of which they may appear in from 20 to 30 per cent. of the cases, in large numbers from the second or third week, and for a long time even in the absence of symptoms referable to the genito-urinary tract.

According to some recent observations made with improved technique, as recorded by Dr. Rufus I. Cole,[1] the bacilli may be found in the blood in 75 per cent. of cases in the course of the second week of the disease. To be successful in their detection it is necessary to employ considerable amounts of blood, and to dilute them considerably. From 8 to 10 c.c. of blood are obtained directly from a vein of the arm under aseptic precautions, and this amount is divided among from one to six flasks containing each 150 c.c. of bouillon, so that dilutions of from 1 to 75 to 1 to 150 result. From this it would seem that it has become possible to make a diagnosis of typhoid fever with a high degree of precision, although what results will develop from the practical application of the theory is yet to be seen. In any event the frequency with which diagnosis is made by this method will depend upon the thoroughness with which the clinical examination is made.

A UNITED PROFESSION.

Were one a dreamer, one might expatiate on the possibility of having a united profession, but not otherwise—provided by this is meant a union of all physicians into one body. It would be impossible, outside of Utopia, to create a society whose principles and plan of organization in every detail would be acceptable to every individual.

It would not have been strange if some should have criticised the reorganization plan adopted at the last meeting of the American Medical Association, which it asks all its affiliated state societies to adopt and concur in. But thus far no criticism of the general plan has been noticed. All the medical journals which have expressed themselves have done so with approval, and while nearly all the state societies had held their annual meetings before the St. Paul session, and consequently before the adoption of the report of the reorganization committee, those that have considered it have done so favorably. While this does not prove that a few may not have some objections to some of the changes recommended, it shows that the many endorse the changes adopted.

While the American Medical Association has taken the initiative in adopting this new plan to unite the medical profession of our country into one compact body—a plan founded on practical and business principles—its satisfactory accomplishment can only be secured by the hearty co-operation and active assistance of the state and local societies, as well as by the aid of the individual

1. Bull. Johns Hopkins Hosp., July, 1901, p. 203.

members of the profession. With this assistance, within three years we will have an organization of the physicians of this country that will compel that respect which is their due, whose power through its far-reaching influence will force politicians to grant its just demands, and which will force the recognition of the services which physicians have rendered mankind.

On the state societies now rests the responsibility and on them the National Association depends to push forward the work of organization; and we need not expect to see the profession organized in those states or territories in which these societies fail to recognize this responsibility. As most of these bodies met this year before the reorganization plan was adopted by the National body, the plan in its completeness has not been brought before them and can not be till next spring.

But there is no reason why the work of organization should wait for the official action of the state society. There is no reason why county or district societies should not be organized now, nor why the existing ones should not take up in an active manner the work of increasing their membership and of performing in an effective manner the functions for which societies are supposed to exist.

This will require individual effort—a factor which counts in every walk of life and which is especially necessary in this work. One individual in a medical society can change it from a dormant to an active, living, working society with an influence that will be measured only by its size. One individual in a county, even though there are but a half dozen physicians in it, can organize a local society that will become a feeder for the state society and a unit in a great whole which will make an organized profession. Individual effort is necessary in building up any organization; outside the medical profession this effort is paid for. But with us the interest one has in his profession must be the stimulus to this individual effort, at least until the state society recognizes the necessity of adopting business principles and pays for the work.

Soon autumn will be with us—a splendid time to put forward this individual effort and to commence the active campaign.

BALANTIDIUM COLI THE CAUSE OF CHRONIC DIARRHEA.

Solowjew[1] describes a carefully studied instance of chronic diarrhea in a man of 54, in whose fecal discharges were found numerous balantidia coli. Enemas of tannin and the internal administration of tannoform had no effect. The diarrhea continued with living parasites in the discharges, and death resulted. At the postmortem nothing remarkable was found in any other organ except the large intestine, which was the seat of large ulcerations throughout. The ulcers were rounded or oval as well as irregular, up to 1 cm. and more in diameter, their long diameter running transversely, the margins usually more or less thickened and nodular. The nodules were somewhat reddish and yielded on incision a juice which contained balantidia filled with red corpuscles. The floor of the ulcers often reached to the muscular coat and in some of the larger to the serous. Between the ulcers the mucous membrane was reddened and swollen. Similar changes have been observed in nearly all previous postmortems in cases of this kind, of which Solowjew mentions sixteen. In some cases the margins of the ulcers were undermined. From the microscopic examination of the ulcers, which is described with great minuteness of detail, the author reaches the conclusion that balantidia coli, by virtue of their active, independent movement, may penetrate the mucosa; passing between the glands, they reach the submucosa and give rise to necrosis and ulceration. Later, they even pass between the layers of the muscular coat. Solowjew found the parasites in all parts of the intestinal wall and also in the lumen of the vessels. The wandering cells in the vicinity of the ulcers were filled with hematogenous pigment, suggesting that considerable destruction of red corpuscles had taken place.

In view of these interesting findings it behooves physicians to carefully study cases of chronic diarrhea for balantidium coli, in the hope that as observations multiply the occurrence of a definite form due to this parasite may be definitely demonstrated or disproved. The chapter of chronic diarrhea and dysentery is still a very unsatisfactory one, because it undoubtedly includes a number of various distinct processes of different etiology and consequently to a large extent susceptible only of symptomatic treatment.

1. Centralbl. f. Bakt., Abt. 1, 1901, xxix, 821-831 and 849-860.

THE WAR ON MOSQUITOES.

The health officer of the port of New York, Dr. Alvah H. Doty, has been experimenting with insecticides to do away with the mosquito pest in malarial districts within his jurisdiction. In one particularly insanitary section of limited extent, a noticeable change for the better followed oiling the numerous stagnant pools, cisterns, etc., with petroleum. The mosquitoes, while not exterminated, were greatly reduced in number, to the corresponding comfort of the residents. If it were not that numerous other breeding places existed just over the borders of this square mile or less of territory the results would have undoubtedly been much better. While the experiment goes far to prove the local character of the mosquito fauna and indeed it is hardly to be expected that they would be so restricted in their movements as this experiment would seem to show, a complete success would require a much more general attack on the pests than was here made. Still the result is most encouraging, and taken together with a similar, even better, result reported from Atlanta, Ga., there appears to be some hope of exterminating malaria and its source. If this can be done so near the New Jersey marshes and in the South the outlook for the

still more deadly regions where a worse type of malarial disease or yellow fever exists, is materially brightened. Of course, there are serious questions, of expense, etc., involved, but they are not the first matters to be considered, and each genuine progress will make their solution easier. The proposition to encourage the propagation of birds, dragon flies, etc., as mosquito destroyers is not seriously considered by Dr. Doty, who compares the notion to the tropical method of using buzzards as a substitute for scavengering and sewage and prophesies its like inefficiency. The presence of fish in mosquito-infected waters, however, seems to be a rational and it may be an efficient and inexpensive agency, though there are doubtless many conditions in which it would fail to be very effective. Whatever helps in the good work nevertheless should be employed and we may be thankful for dragon flies and whatever else is on our side in this war against the pesky little disease-spreading insects. They were bad enough as a simple nuisance and infinitely worse now that these other possibilities of evil are known.

THE EFFECT OF THE DANYZ VIRUS ON RATS.

Apropos to the above the recent experiments by Rosenau on the Danyz virus for the destruction of rats, in the hygienic laboratory of the Marine Hospital Bureau, are less encouraging. The rat, as we now well know, is a special plague victim, unfortunately for us as well as for himself, and he has the peculiar habit of developing the disease and introducing it to mankind. Anything, therefore, that can lessen this possibility is to our advantage; one of the most obvious ways, if practicable, would be to find some disorder that could decimate or extirpate these parasites and would be harmless to man. Such a one appeared to possibly exist in the Danyz culture of what seems, from Rosenau's study, to be the bacillus typhi murium of Loeffler, a microbe frankly pathogenic for certain smaller species of the Muridæ, the common house mouse and others. It was naturally inferred, therefore, that it might also have similar effects on the larger species, and Danyz, by a patient cultivation of the organism, claimed he had produced the desideratum. Rosenau's experiments, however, made on caged animals under specially favorable conditions for infection, do not justify those claims. He finds that only the ingestion of large amounts of virus by the rodents is fatal, and smaller quantities are uncertain and often produce an immunity to even extreme doses. The infection has but feeble power of propagating itself from rat to rat, and this being true its efficiency is in a great measure lost. In many respects it acts like a chemical poison, with the advantage that it is harmless in men and domestic animals, so far as known, and with the disadvantage that it produces an immunity. It is evident, however, that we will have to look farther for an efficient ally in our crusade against that objectionable rodent, the rat.

THE CLINICAL DIAGNOSIS OF INFLUENZA.

The symptoms of influenza are in general not so distinctive as to permit always of ready and infallible diagnosis from clinical observation, and bacteriologic investigation is not so simple of application as to be often resorted to, so that it is not unlikely that on the one hand a good deal of what goes by the name of influenza is really not that disease, while on the other hand a not inconsiderable number of cases of this affection may escape recognition, or be mistaken for other affections. Accordingly, it would be a source of great comfort to the careful clinician to know that certain manifestations are distinctive of influenza, and at the same time sufficiently common to make their presence valuable from the diagnostic point of view. To such a symptom renewed attention is called by Dr. F. Franks,[1] who has found it in almost every case of influenza observed in the past nine years, but under no other conditions. It consists in a band of redness upon the anterior palatine arch, and it may persist for a long time after the attack has terminated; the uvula and the tonsils are not involved. In many cases the discoloration is attended with no subjective manifestation, but not rarely symptoms of angina are present, among which a sense of constriction of the throat is characteristic. Another typical symptom, almost as common as that just described, is enlargement of the papillæ of the anterior portion of the tongue. This is only less marked than in cases of scarlet fever. It is usually unattended with subjective symptoms, but at times there is a sense of soreness or pain at the tip of the tongue. A further sign, that was observed rather frequently in protracted or recurrent cases, is enlargement of the spleen; this is usually demonstrable only by percussion and not by palpation, and its persistence is of unfavorable prognostic significance.

DANGER OF BOVINE TUBERCULOSIS.

The medical public will not rapidly give up its convictions as to the danger to human beings of bovine tuberculosis, in spite of the opinion of Dr. Koch. In the present issue we present a paper on the subject by Dr. Salmon, the veterinarian of the Agricultural Department at Washington, which voices the evidences of the transmission theory. It would be clearly unsafe at the present stage of our knowledge to neglect precautions against possible infection from animals. It must be remembered, however, that the facts that seem to point to the existence of this danger are not absolutely conclusive—they have not the value of scientific demonstration—and that our reasonable caution is based on inference, not on proof. An apparent bovine infection, as in the cases related by Salmon and Ravenel, is not an absolutely assured one, and local disease by inoculation is not exactly the same thing as pulmonary or other infection by ingested meat or milk. There is a certain *propter hoc* quality in the reasoning from the facts so far adduced, and they do not definitely prove that Koch, Moore, Billings and others are wrong. Human tuberculosis may produce local irritation when inoculated into cattle; it is very likely that the converse is true; possibly to a much greater extent. Dr. Salmon's opinion that the cases he cites are "sufficient to demonstrate the communicability of bovine tuberculosis to man," may not be shared by everyone; they hardly fulfill all the conditions of a pure scientific experiment. It is un-

1. Deutsches Archiv f. klin. Medicin, 70 Bd., 3. und 4. H. p. 280.

fortunate that they do not, but it is difficult to see how they can; the possibilities of pre-existing disease or even of mere coincidence can not be excluded. We seem to be practically limited to clinical observations in the decision of this question, and it looks as if it might be a long time before it is settled.

THE PATHOGENESIS OF PARALYSIS AGITANS.

Although the symptomatology of paralysis agitans has been very thoroughly described, the pathogenesis of the disease is still involved in considerable obscurity. The affection occurs especially in advanced life, and such lesions as have been discovered after death correspond essentially with those of senility. It is true, cases are sometimes observed in comparatively young individuals, and in these the disorder is attributed to the premature development of the senile changes. The cardinal symptoms are rhythmic tremor, and muscular weakness and rigidity. The etiology of the disorder is not definitely known, although the symptoms have at times been observed to appear in a part of the body that has been subject to traumatism or to strain. They have also been seen to follow exposure to cold, or in the train of acute infectious diseases. Of late it has been suggested by some observers that paralysis agitans is dependent upon disease of the muscles themselves, and a case that goes far to support this view has been recently reported by P. F. Schwenn.[1] The patient was a man, who, at the age of 32 years, exhibited symptoms of writer's palsy, followed by a gradual development of rhythmic tremor in the right hand, then in the right lower extremity, and eventually also in the left upper and lower extremities and the head, together with other characteristic symptoms of paralysis agitans, and terminating fatally at the age of 43 years. Among manifestations of special note was difficulty in speech, which was toneless, almost unintelligible and faint, but became gradually louder and louder. Cough was also at first feeble and short, although gradually becoming stronger. Swallowing was difficult, and food had eventually to be administered through a tube. For a time, in the act of respiration, a series of inspiratory movements was followed by a long and not particularly deep expiration. Postmortem examination failed to disclose macroscopic or microscopic lesion in the central nervous system, but on histologic study of muscular tissue from various parts of the body a distinct increase in the longitudinal connective-tissue nuclei in the interstices of the individual muscular fibers was found, and the opinion is expressed that it is this change that is responsible for the symptoms of the disease. The muscles have not, as a rule, been made the object of study after death in cases of paralysis agitans, but such reports as have been recorded of examinations of this tissue are in accord with that in the present instance, and the lesions described would seem to be sufficient to account for the symptoms.

1. Deutsches Archiv f. klin. Medicin, lxx. Bd, 3. und 4. H. p. 19.

Prophylaxis of Tuberculosis in Factories.—By his personal efforts Tornu, of Buenos Ayres, has had the walls of the match factories placarded with instructions how to avoid tuberculosis, and has succeeded in having similar brief notices pasted on match boxes, cigar boxes and other objects of daily use.—*Revista Med. d. Uruguay.*

Medical News.

CALIFORNIA.

The California Hospital, Los Angeles, is to have a three-story brick addition to cost $25,000.

Smallpox has appeared in Napa, and has apparently been eradicated from San Jose, where the last placard has just been removed.

Major William L. Kneedler, surgeon, U. S. army, has returned from China and is sojourning at Coronado Beach, pending his departure for West Point, where he has been assigned to duty.

Prizes for Hospital Plans.—The building committee of the German Benevolent Society, San Francisco, has offered prizes of $2000, $1000, $750 and $500 for the four designs best meeting its requirements for a new hospital to cost $250,000.

Personal.—Dr. Herman E. Muller, Oakland, is spending his vacation at Bartlett Springs.——Dr. and Mrs. George B. N. Clow have returned from a European trip; Dr. Clow will resume practice in San Francisco.——Dr. J. T. Royles, Woodland, has returned from a trip to the Yukon country.

COLORADO.

Dr. John W. O'Connor, Denver, succeeded Dr. Frederick J. Bancroft as chief surgeon of the Rio Grande Western Railroad.

Morbidity and Mortality of Denver.—The report of the Bureau of Health for July shows 25 cases of diphtheria; 52 of scarlet fever and 10 each of measles and smallpox, a reduction of more than one-half as compared with June. The mortality for the month was 254, equivalent to an annual death-rate of 20.30 per 1000. Tuberculosis caused 62 deaths.

Rio Grande Western Hospital Association.—A hospital association for employees of the Rio Grande Western Railroad is to be organized on the same lines as that now in operation for the Denver & Rio Grande Railroad. It is intended to combine the hospital service of the two roads so that patients on the Rio Grande Western, who now have to be taken to Salt Lake City, Utah, may be received at the D. & R. G. hospital at Salida.

To Test Koch's Theory.—The question of whether or not animal tuberculosis can be communicated to human beings has led T. L. Monson, state dairy commissioner of Colorado, to agree to submit to a thorough test of the matter, provided a suitable annuity for his family is guaranteed in case the experiment should prove fatal to him. Mr. Monson has given a great deal of study to tuberculosis and the peculiarities of the disease in cattle and human beings and is a firm believer in the theory recently promulgated by Professor Koch, that animal tuberculosis is not transmissible to man.

CONNECTICUT.

The State Board of Medical Examiners, at its July session, examined 41 applicants, 35 of whom were successful and have been granted licenses to practice medicine in the state.

Mortality of Connecticut.—The Monthly Bulletin of the State Board of Health for July shows 1297 deaths during the month, with an annual death-rate for the larger towns of 18.1; for the small towns, 14.4, and for the entire state, 17.1 per 1000. Of the deaths reported, 315, or 24.3 per cent., were from infectious diseases.

New Haven Personals.—Dr. Robert S. Ives will leave shortly for Gloucester, Mass., where he will remain during the summer. He has been in ill-health for several months.——Dr. Francis Bacon has gone up to Peterborough for the summer.——Dr. G. Totten McMaster has gone to his cottage at York, Maine.——Dr. William W. Hawkes will leave town shortly for a hunting trip in Maine.

Revision of State Health Laws.—The State Board of Health recently held a meeting at the Surf House, Savin Rock, to give hearings to health officers from all over the state, concerning proposed revision of the health laws in towns. About 100 officials were present. The result of the meeting will be that health officers or selectmen of the towns will submit to the State Board of Health copies of their health regulations, which are to be considered by that board.

ILLINOIS.

Dr. George E. Wilkinson, Alton, has been appointed surgeon in the Illinois Naval Militia and assigned to the second ship's crew.

Dr. **Charles E. Crawford**, Rockford, was re-elected supreme medical examiner of the Sons of St. George, at its annual convention held in Racine, Wis., August 13.

The **Morgan County Medical Society** has been presented by Dr. H. W. Milligan with 150 volumes from his library. It is understood that the late Dr. N. S. Read, who presented the library with 150 volumes several years ago, has bequeathed the balance of his library to the Society.

New Dental Board.—The governor has appointed the following Board of Dental Examiners: G. H. Dameron, Arcola, to succeed H. W. Pitner, Fairfield; J. G. Reid, Chicago, to succeed himself; Clark R. Rowley, Chicago, to succeed J. H. Smyser, Chicago; T. W. Pritchett, Whitehall, to succeed W. C. Jocelyn, Cairo, and Donald K. Gallie, Chicago, to succeed Clarence Corbett, Edwardsville.

Chicago.

Dr. **J. P. Smyth** was elected High Physician of the Catholic Order of Foresters, at its annual meeting in Detroit, August 14.

Addition to Passavant Hospital.—Contracts have been let for a five-story brick and stone addition to the Passavant Memorial Hospital, to cost $15,000.

Personal.—Dr. and Mrs. George Paull Marquis sailed for Mackinac, August 15.——Dr. Frank Billings is spending the summer in Mackinac.——Dr. Albert H. Roler left for Mackinac, August 17.

Typhoid Fever is reported to be epidemic in the Nineteenth Ward. The Ward Improvement Association attributes the disease to infection from the filthiness of streets and alleys, but does not consider the possibility of water, milk or other foods as causative agents.

Stealing at the County Hospital.—Since Warden Healy assumed charge of affairs at Cook County Hospital, he has noticed mysterious disappearances of barrels of flour, medicines, clothing and the like. He instituted an investigation, as a result of which warrants have been sworn out against the suspected employees.

Impure water and not impure ice is the cause of the typhoid fever now prevalent in Chicago, says Acting Health Commissioner Dr. Frank W. Reilly. The heavy rainfalls of later June and early July washed into the lake enough pollution to impregnate the drinking water with disease germs. Intensely hot weather following caused an increase in the consumption of drinking water, with the result that there was a marked and sudden increase of all acute intestinal disease, particularly in the poor wards, where the precautions of filtering or boiling are not generally observed.

Increase in Contagious Diseases.—The Health Department Bulletin announces that after a period of unusual freedom from the contagious diseases, especially those of childhood, a marked increase has been noted during the past week in certain districts of the city, to-wit, scarlet fever in Rogers Park and scarlet fever and diphtheria in the Sixteenth and Twenty-eighth wards and in South Chicago north of Ninety-first street. An investigation, not yet completed, seems to show that the spread of scarlet fever in Rogers Park has been due to violation of the rule of the Health Department concerning the supply of milk to families in infected houses. On receipt of notification of a case of diphtheria, scarlet fever, etc., a warning card is affixed to the kitchen door, or other place where milk is left, reading: "Notice to Milkman. There is [name of disease, diphtheria, scarlet fever, etc.] here. The milkman must not enter the house. The family will set vessels outside, into which the milk and cream must be poured by the milkman, who must not handle the vessels. Milk or cream must not be delivered in bottles until this card is removed." There is reason to believe that this rule was not obeyed in the first cases of scarlet fever in Rogers Park and that infected bottles from the premises of these first cases were the medium of the subsequent spread of the disease. Housewives should assist the department in the enforcement of this rule and parents should be especially careful at the present time to prevent exposure of their children to families in which these diseases exist.

MARYLAND.

Merrill Hopkinson, who is at Checkley, Prout's Neck, Maine, has sent to the *Baltimore Sun* a check for $50, being one-half the proceeds of a concert which he gave there. He desires the amount to go to the Fresh-Air Fund of Baltimore.

Increased Water Supply for Baltimore.—The capacity of Lake Roland, from which Baltimore gets its chief water supply, has been increased by dredging 500,000 cubic yards. Several cases of typhoid fever are reported at Towson, which forms part of the watershed of the lake.

Dr. John S. Fulton, secretary of the State Board of Health, has been appointed a delegate to the National Health Association, to meet in Buffalo, September 16, and Dr. William Royal Stokes, a delegate to the Bacteriological Convention to meet at the same time and place, both as representatives of the Maryland State Board of Health.

Personal.—Dr. Alfred Whitehead is visiting Asbury Park, Buffalo and Canada.——Dr. Edwin Geer is at Ocean City, Md.—Dr. H. H. McArthur is at Brigantine Beach, N. J.—Dr. J. C. Hemmeter is at the Thousand Islands.——Drs. H. J. Hoye, H. T. Marshall, and B. R. Schenck sailed from Baltimore for Bremen on August 14.——Dr. J. A. Evans has gone to the Pan-American Exposition.——Drs. J. A. Carnes and E. G. Welch are at Atlantic City.

MICHIGAN.

Tekonsha is now having the proverbial doctors' disagreement about a disease resembling smallpox. After the usual lapse of time and failure to take preventive measures, the disease will probably be determined to be smallpox.

Mortality of Michigan.—During July 2470 deaths occurred in the state, a death-rate per 1000 of 12.2 per annum. Consumption caused 176 deaths; typhoid fever, 27; diarrheal diseases of infants, 252; cancer, 126; violence, 234; diphtheria, 16; scarlet fever, 7, and smallpox, 2.

MINNESOTA.

Dr. Fred P. Strathern, St. Peter, has gone to New York for a course of post-graduate study at Roosevelt Hospital.

Diphtheria is unusually widespread for this season of the year, says the secretary of the State Board of Health, and unless stringent methods of quarantine are adopted over the entire state, there will be, in all probability, a general epidemic as winter approaches—an epidemic which will be far more demoralizing and fatal than has been that of smallpox during the past two and a half years.

Advisory Vaccination.—Dr. Henry M. Bracken, Minneapolis, secretary of the State Board of Health, has issued a sweeping advisory circular, in which it is recommended that all employees of railroads, lumber camps or mines be vaccinated or present proof that they are immune to smallpox. The lumbermen will co-operate with the Board this year and require vaccination as a condition of employment. The order also recommends to school boards that vaccination be required of teachers and school children not already immune.

MISSOURI.

Dr. John Punton, Kansas City, is taking a two-months' vacation in Europe. He expects to return about the middle of September.

Baby Farms and Lying-In Hospitals.—Mayor Reed, of Kansas City, has signed the ordinance governing baby farms and lying-in hospitals and proposes to have the law vigorously enforced.

Drainage Canal the Scapegoat.—The health commissioner of St. Louis, in his annual report, gives the statistics of typhoid fever for the past five years. In 1895 there were 392 cases reported; in 1896, 281; in 1897, 464; in 1898, 408; in 1899, 1114, and in 1900, 1160. He attributes this increase to the sewage of Chicago. Dr. Starkloff apparently does not believe in the self-purification of running streams, nor does he seem to take into account the possibility of an increase in reports being responsible for the increase in aggregate cases.

Tuberculosis in St. Louis.—Dr. Max C. Starkloff, health commissioner of St. Louis, in his annual report, asserts that 90,000 of the population of 600,000 in St. Louis will die of tuberculosis. He recommends and urges on the municipal assembly the passage of a bill declaring pulmonary tuberculosis an infectious disease, dangerous to the public health, and that it be classed as contagious. The "white plague" caused 1353 deaths in St. Louis in the year ending April 1 last. There are 10,824 cases of tuberculosis in St. Louis today. The disease annually costs St. Louis more than $1,500,000. Tuberculosis germs are the only cause of the disease. It is not hereditary. Incipient tuberculosis tends to recovery, but advanced tuberculosis tends to a fatal issue. The disease is communicable and preventable.

NEW JERSEY.

Dr. Alexander T. Steele has been appointed assistant house-physician at St. Joseph's Hospital, Paterson.

North Hudson Hospital medical staff has been augmented by the appointment of Dr. John T. Luck, Union, and Dr. Benson, West New York.

Consumption Officially Declared Contagious.—The Jersey City Health Board has notified all physicians to report all cases of tuberculosis under head of contagious diseases. But the opinion is rife that more legislation is requisite to make the ordinance effective.

Diploma Mill Closed.—The "Central University of Medicine and Science," Jersey City, presided over by J. W. Norton-Smith, M.A., Ph.D., S.D., LL.D., which offered a degree in medicine for $10, or a diploma in medicine and philosophy for $15, has been closed by the governor.

Smallpox Not Yet Abated.—On August 13 three more cases were reported, one in East Newark and two in Harrison. In Newark proper three quarantined inmates of a house escaped during the night, and a day later were still at large. Two inmates of another dwelling made an attempt to escape at noon, but were returned to their quarters by the police. Two other captives on refusal to go back into their house were placed under arrest.

NEW YORK.

Dr. James C. Kennedy, Brooklyn, was seriously injured August 17, while trying to save the life of his carriage boy in a runaway. He was thrown against a telegraph pole, trampled on by the horse and run over by the carriage.

The first public playground and out-door gymnasium in Buffalo was opened to the public August 17, with appropriate ceremonies, in which the mayor, Dr. Diehl, and the Park Commissioners, represented by Drs. C. C. Wyckoff and M. D. Mann, took part.

Work on the new Batavia Emergency Hospital is progressing rapidly and the hospital will probably be ready for occupancy before winter. The members of the Genesee County Medical Association have agreed to furnish the money for fitting up the operating room.

Physicians' Protective League.—The physicians of Cortland and vicinity have organized to protect themselves against "dead-beats." After sixty days each physician is to prepare a list of his delinquent patients and hand it to the secretary. A copy of the names of the delinquents will be in the hands of every physician, and a physician who attends one of these delinquents, except in cases of emergency, shall be liable to a fine of $10. This agreement does not prevent physicians from giving medical aid to patients who are unable to pay, but is designed to protect members of the league against "dead beats."

Inspection of State Institutions.—As a result of Governor Odell's recent tour of inspection through the institutions for the care of the insane in the state, it is admitted by the governor himself that his annual message will contain a number of recommendations. The fact that the total cost of these institutions for the year 1900 was $5,544,891 as against $1,346,019 in the year 1893, will, it is said, be the ground on which the governor will ask the legislature to practice greater economy in this direction.

OHIO.

The deaths in Cincinnati for July exceeded the births reported by 342.

The People's Hospital, built by the colored people of Cincinnati, will be ready to receive patients early in November.

Dr. Claude B. Parker has resigned his position on the staff of the State Hospital for the Insane, Athens, and has returned to Gallipolis, where he will practice medicine with his father.

Dr. Thomas Grant Youmans, surgeon to the police and fire departments of Columbus, has been granted a vacation of a month. Dr. Ira B. Hamblin will attend to Dr. Youmans' duties in his absence.

Dr. Robert C. Tarbell, on leaving the State Hospital for the Insane, Columbus, to take up a special course of study in New York, had a reception given in his honor, August 2, at which he was presented with a diamond ring by his associates in the hospital.

PENNSYLVANIA.

For criminal practice, Joseph Heppenstall, alias Dr. Wills, of Philadelphia, was sentenced to four years in the Eastern Penitentiary on August 12.

Dr. J. Purd Kerr was elected a member of the board of directors of the Southside Hospital, Pittsburg, August 13, vice Dr. Michael A. Arnholt, deceased.

Dr. Robert J. Black, the mayor of McKeesport, who has been receiving considerable newspaper notoriety recently in connection with the strike, is a practicing physician, and a graduate of the Baltimore College of Physicians and Surgeons.

Troubles of Examining Boards.—The following extracts from letters of an applicant to practice medicine in Pennsylvania, demonstrates what the Board occasionally encounters. On July 2 he writes: "I have two licenses or certificuts from two different States. * * * I know of lots of doctors now in Pennsylvania who are practicing medicine, even in this county. Now, if you will be of help to me in obtaining a certificut I will give you some of their names, but if you can not be of any benefit to me I will not give their names away, and will go away to my licensed States." He adds as a postscript: "If you will help me to obtain a certificut, there is $50 in it for you, and if not I will leave at once." Two days later he wrote to the medical inspector that he did not care about "doctoring eny longer"; that he had practiced twenty-two years at different places; is now 43 years old, and has a good farm, where he can "enjoy life without practicing medicine under the Manopely laws of Pennsylvania." After declaring that he had studied under various physicians; that he was in "Buffalo University for three terms of lectures," and "then went to Chicago and graduated," and has his diploma, he adds: "I do not belong to the Manopely gang of allopaths, homeopaths nor electics, so will never go before the death dealing gang of robers for to be examined. There is no need of our writing eny more on this subject, so good day."

GENERAL.

Hawaiian Insane Asylum.—Dr. R. M. McMaster has been elected superintendent of the Insane Asylum at Honolulu. Dr. McMaster is a graduate of Rush Medical College, 1894; he afterwards practiced at Omaha.

Germans Criticise American Students.—The *Rhein. Westphal. Zeitung* states that American students who study at German universities are generally less educated than the students in the tertia (third year) of their gymnasiums (high schools). It says: "Here they study superficially and then pose as German physicians in the United States. The result is that German physicians no longer enjoy the reputation in the United States they once did. There is all the difference in the world between a German physician and a physician superficially educated in Germany, because he lacks preliminary education." German newspapers urge that unless the students from the United States acquire sufficient knowledge to fit them for a university course they should be excluded from German universities.

Yellow Fever Tests Prove Fatal.—Experiments are being conducted at Havana to test the immunizing and curative efficacy in yellow fever of the serum furnished by Dr. Caldas, a Brazilian physician. Dr. W. C. Gorgas provided eight mosquitoes from Santiago de Las Vegas which had bitten a well-marked case of yellow fever. Two of these anopheles were allowed to bite two people whom Dr. Caldas had previously inoculated with his serum to render them immune; two more bit non-immunes. On August 18, a Spaniard died who had been bitten by one of these germ-laden mosquitoes. He was healthy before the test, but developed yellow fever four days afterward. On August 19, a second man died who had been infected by a mosquito. Dr. Harvard, chief surgeon in Cuba, now refuses to permit more experiments of the kind to be tried.

CANADA.

Dr. Francis C. Mewburn, Toronto, celebrated the sixtieth anniversary of his wedding on July 25. He obtained his license to practice in 1838.

Dr. F. C. Macdonald, Scarboro, Ont., who was appointed to the staff of Civil Surgeons of the South African Field Force in December, has returned to Canada and will commence the practice of his profession.

Dr. P. A. Gillespie, formerly of Toronto Junction, but now of Winburg, South Africa, was recently presented with a medal and clasp, and was also granted a bounty for his loyal services to the British Crown during the war.

The Local Board of Health of Brantford, Ontario, has declared that city, as well as the county adjoining, free from smallpox. This includes the outbreak on the Indian Reserve and that among a number of berrypickers in the same county.

Dr. H. R. Woolbert, major in the Indian Medical Service, visited Toronto in July, and was the guest of Dr. O'Reilly, superintendent of the Toronto General Hospital. Dr. Woolbert has charge of a large district in India which contains twenty-two dispensaries.

Sewage Disposal at Stratford, Ontario.—Dr. Bryce, of the Provincial Board of Health, has returned to Toronto after inspecting the septic tank system of disposal of sewage at Stratford. This is the only system of its kind in Ontario and probably in Canada.

Medical Profession at the Canadian "Soo."—The profession on at the Canadian "Soo," through Dr. McCaig, has very kindly offered to entertain the members of the profession from the East who pass through their town on their way to the Winnipeg meeting of the Canadian Medical.

An Outbreak of Hydrophobia.—The Department of Agriculture at Ottawa has received reports of an outbreak of rabies in the township of Pelham, Ontario, a short distance from Niagara Falls. Several fresh cases have recently appeared, and the Department has ordered Professor Baker, acting chief veterinary of the Dominion, to go and investigate.

Western Hospital, Montreal.—The governors of the Western Hospital, Montreal, are now discussing the plans for a new hospital at Westmount, the erection of which will cost $100,000. For several years now the institution has been running on a good financial basis, and the majority of those interested in the future welfare of this hospital think that the time is opportune for the erection of a modern building. The subject will be left to the medical board for a report.

British Columbia Medical Association.—This Association will hold its second annual meeting on September 5 and 6, the original date having been changed from August in order that the latter might coincide with the arrival on the coast of the excursion of medical men from the East after the meeting of the Canadian Medical Association at Winnipeg. The profession on the coast extend a cordial invitation to all eastern brethren to attend and join in their discussions and also to partake of their hospitality.

Montreal's Water.—The following is the way a local paper describes the present condition of Montreal's water: The report of the city analyst that the Montreal water is not dangerous will be very reassuring. It is gratifying to learn that the thickness which now helps to make the water solid is not the same kind of thickness in the spring, when the decayed vegetable matter from the streams helps to make the liquid soup-like and slimy. It is only minerals in solution, with sewage in finely distributed particles, which we now have with us and the Montreal water is not considered any worse than other American river waters. While this is reliable evidence that the article is not dangerous, it might still be just as well to keep a baseball mask, or some other appliance, hung across the exit of the faucet to keep the menagerie from escaping into the house and biting somebody.

Afflicted with Trachoma.—The question of admitting immigrants via Montreal to the United States has now become a very important one, when on Wednesday afternoon of last week eight Assyrians were brought before Inspector Francis for examination. Dr. Heiser, the United States immigration officer for the Province of Quebec, was present, and at once pronounced five of them to be suffering from trachoma. They were therefore refused the passport necessary for admission into the States. However, they were got on the train and taken as far as Rouse's Point, where they were arrested by United States officials and lodged in gaol awaiting instructions from the government at Washington. The five afflicted were by authority sent back to Montreal and there remain awaiting further developments. Contagious diseases are equally an embargo for admission to Canada as to the United States, and all immigrants undergo a thorough examination at Grosse Isle, but trachoma, favus and hernia, whilst debarred from the United States, are passed for Canada. The immigrants are still living in Montreal.

Canned Goods as a Cause of Disease.—A little over a year ago, the Department of Inland Revenue at Ottawa, sent out a circular letter to 4348 medical men in the Dominion, asking whether any cases of illness, apparently attributable to the use of tinned goods, had come under their notice within recent years; 1312 replied, and of these 1059 answered in the negative, while 254 answered in the affirmative. From Ontario came 112 affirmatives and 466 negatives, and from Quebec 66 affirmatives and 22 negatives were received. In view of these answers, the Department will at once adopt precautions in the interests of the public health. Judging from the replies received from physicians, the number of cases of disease apparently attributable to tinned goods would average about 138 per annum in Canada in an average period of about seven years. A total of fifteen cases terminated fatally. From a close analysis, the Department finds that there is nothing in the canned salmon trade to justify newspaper strictures which were brought to its notice.

FOREIGN.

Baccelli Minister of Agriculture.—Professor Guido Baccelli was a member of the Italian cabinet for a time as minister of public instruction. He has recently been appointed minister of agriculture.

German Orthopedic Society.—The orthopedists of Germany are organizing a national association to meet for the first time at Hamburg, September 23. Hoeftman, of Königsberg, Prussia, issues the appeal, which is signed by eighteen well-known names.

Deaths Abroad.—Dr. Bosse, of Berlin, died July 31, 69 years of age. He served at one time as "Kultusminister," and has always taken a prominent part in affairs connected with the public health.—The death of Dr. J. Schramm, a prominent surgeon of Dresden, is also announced.—The death of Professor Moncorvo is reported from Rio de Janeiro.

Government Investigation of Tuberculosis.—The German imperial board of health has summoned a conference of the leading authorities on tuberculosis in the country, to discuss the subject and institute research on the lines suggested by Koch. The specimens from the veterinary school on which his statements were based, are to be placed on public exhibition.

Death of the Empress Frederick.—Our German exchanges deplore the death of the Empress Frederic, to whose initiative and material and moral support the profession, the interests of the sick and the public health in general, owe so much. They comment on the coincidence that both she and her husband succumbed to malignant disease, and that the possibility was denied them of being saved by timely surgical intervention.

Female Students in European Universities.—According to the *Deutsche Med. Wochens.*, there are, excluding Munich, 95 female medical students in Germany, of whom 56 are foreign. They are distributed as follows: Berlin 25 (21 foreigners), Leipsic 24 (22 foreigners), Freiburg 18 (14 foreigners), Halle 12 (9 foreigners), Heidelberg 6, Bonn 5, Strasburg 2, Breslau 2, and Königsberg 1. In Switzerland, Berne University has 188 females (180 Russians), Zürich 85, and Lausanne 61.

LONDON LETTER.

Place of Meeting of the British Medical Association.

The selection of Cheltenham as a place of meeting for the Association, July 29-August 3, caused some surprise when it was first announced. Cheltenham, a name familiar in every text-work of therapeutics for the past 70 years, both for its mineral springs and having been the home of Edward Jenner, has in fact been neglected, and as a place of resort for invalids has been cold-shouldered, and the invitation issued to the medical men of the country to assemble there was rather coldly received. How different the reality has been every member of the Association is heartily agreed upon, for never had the members a more pleasant meeting-place than that afforded by Cheltenham. The synonym by which the city is known is the "Garden City" and thoroughly well bestowed is the name. So well is it favored with garden and foliage, that the city, with a population of some 50,000 persons, occupies an area out of all proportion to the actual numbers.

The Reorganization of the British Medical Association.

One of the most important events of the meeting was the consideration of the report of the Committee on Organization, which was appointed at the last meeting. While it was expected that much opposition would develop when the report was finally presented to the Association, the result was just the opposite, and practically the full report was accepted and adopted with a few minor changes. The report was introduced in a masterly, eloquent, diplomatic and witty speech by Mr. Edmund Owens, and this happy introduction of the report had as much to do with its adoption as anything, except the realization on the part of the members present that the Committee had spent much time on it, and, therefore, probably thought it could not be amended with any satisfaction. The Association under its past plan has been anything but satisfactory and a great desire has been evident on the part of all the

members to make some change and as a rule a radical change was expected and hoped for. As someone afterwards said, the Association, as heretofore conducted, has been a pyramid standing on its point, base upward, and the point being the Council, which has practically managed affairs. The pyramid is now turned right-side up. Hereafter the affairs of the Association will be conducted by a delegate body, elected by the subordinate branches of the Association. There is a little anxiety expressed on the part of some as to the result of the radical change, although the large majority seem to think that only good can be the outcome. Hereafter the constituencies, in other words the small branches, will be responsible themselves for what the Association may do, for the Association, as a legislative and business body, will be their creation.

The Sections.

The scientific work of the meeting has been unusually successful and all the sections were well attended. The sections on surgery, obstetrics and gynecology were, as a rule, more largely attended than the others. Nothing of striking interest in the way of theories or discoveries or any remarkably brilliant contribution has to be recorded, although there was good all-around work in practically all the sections.

President's Address.

Dr. G. Bagot Ferguson, president of the Association, delivered his address on "Scientific Research; the Indispensable Basis of All Medical and Material Progress," before an audience of about 2000 members. For abstract of this see THE JOURNAL of August 3, page 327.

Dr. Patrick Manson Honored.

Dr. Patrick Manson was presented with the Stewart prize at one of the general meetings. It was established for the encouragement of the study of epidemic diseases. The prize was presented by the president, who congratulated the recipient on the importance of his past work and hoped for his future, both as to health and scientific research.

Annual Dinner.

The Association's annual dinner was held on August 1, at Cheltenham College, and was attended by about 400. It was presided over by the president. Among the speakers were Surgeon-General J. B. Hamilton, Inspector-General A. Turnbull, Sir William Broadbent, Dr. Sabouraad (Paris), Sir William MacCormac, Sir William Church, Professor Onondi (Budapest) and Professor George Dock (Ann Arbor). The latter replied in a humorous vein to the toast proposing the health of the guests, his name having been coupled therewith.

Excursions.

Although there was no equivalent to the Yellowstone National Park of the American Medical Association, the excursions into the famous Malvern Hills and neighboring valleys were interesting and well attended. Tewkesbury Abbey, with its neighboring Roman villa, and Gloucester and Cirencester were also visited by large parties. The scientific work of the meeting was often pleasantly broken into by agreeable garden parties and receptions.

Correspondence.

Collective Investigation of the Influence of the Silver Nitrate Injections on Phthisis.

PHILADELPHIA, Aug. 15, 1901.

To the Editor:—In 1892 the undersigned began a collective investigation of the action of cold in the treatment of acute pneumonia and there is reason for believing that this procedure, which resulted in gathering four hundred cases of this disease thus treated, with a death-rate not quite five per cent., was an important factor in calling attention to the utility of that treatment, and in introducing it to the profession of this country. The research was based on the conviction that no remedy can be called truly successful until it has passed the exacting crucible of clinical experience.

It is now proposed to apply the same ordeal to the silver-injection treatment of phthisis, which, in a large hospital, dispensary and private practice, reaching over a period of three years, and during which many thousand injections were administered, has given me greater satisfaction than any other method that I have ever employed. In keeping with the above expressed feeling a cordial invitation is herewith extended to those members of the profession who have the inclination and opportunity to investigate this method of treating phthisis and to whom a reprint on the subject with full information and blanks to report cases, will be cheerfully sent on application.

THOMAS J. MAYS, M.D.

1829 Spruce Street.

The Smallpox Epidemic.

CLARKSVILLE, Tenn., Aug. 14, 1901.

To the Editor:—There is a point or two in your issue of August 3, to which I wish to call attention. Dr. Happel, in his paper, quotes from F. J. Runyon's paper entitled "Our Recent Epidemic of Smallpox and the Failure of Glycerinated Lymph," read before the Tennessee State Society, April, 1901, and published in the *Memphis Medical Monthly*, August, and attempts to support his own view that vaccination does not prevent the eruptive disease so widely prevalent, and generally recognized as "smallpox."

Runyon's statistics clearly show that proper vaccination did give general immunity to the disease in question, but that glycerinated lymph was not favorable and did not prevent smallpox. I saw many cases with Dr. Runyon, and his observations and experience with glycerinated lymph coincide with my own.

Dr. Le Roy (in his discussion) confounds Clarksville with Montgomery County. Dr. Runyon and I saw the first case of smallpox in Clarksville, and immediately recognized the disease as smallpox. So far as I know, our diagnosis of this and other cases which followed, was never questioned by any regular practitioner in Clarksville.

The case Dr. Le Roy referred to was outside the corporate limits where we had no jurisdiction, and which he diagnosed as "modified smallpox," and which was questioned by a homeopathic physician.

The Doctor is further mistaken as to the source of the Guthrie epidemic. This epidemic was the result of a case from Evansville, Ind., and not from Clarksville.

We take good care of our cases and if the state would exercise measures as rigid, the disease would be much more readily controlled. The three "—ates" with us put a speedy end to the disease, for we vaccinate, isolate and fumigate.

Respectfully, M. L. HUGHES,
City Health Officer.

Miscellany.

Death Rates in South American Cities.—According to E. Coni, in *Rev. Med. d. Uruguay*, the annual mortality per 1000 has averaged 14.11 in the last seven years at Montevideo; 17 at Buenos Ayres; from 35.5 to 59 at Santiago de Chili, and from 22.9 to 45.4 at Rio. At Lima the average for five years is 42.8. Pulmonary tuberculosis is responsible for 25 per cent. of the mortality in Peru.

Another Schlatter.—Our esteemed contemporary, the *Iowa Medical Journal*, has the following in its August issue: "The poor old Divine-Healer Schlatter, who created such a furor in Denver a few years ago, was arrested as a vag in Washington last month. He had been on a drunk for three weeks when run in. It seems that the divine-healing business is not profitable with some. It is an indication of the public pulse when lay journals and newspapers take up the subject of "christian science" and Dowieism and handle them as roughly as they do. The narrow-minded and closely contracted followers of these fadisms are getting fewer every day and it will be but a short time until such absurd theories as are now promulgated by these sects will be a thing of history." The Schlatter who a few years ago drew to Denver such crowds of dupes, was an entirely different individual from this Washington crank. The former was probably an honest religious paranoiac, who was reported to have starved to death while fasting forty days.

Anal Dermoid Cyst Fistulae.—Serenin mentions in a communication to the *Med. Obosrenje* for January that he has had occasion to treat three cases of anal fistula which resulted from a suppurating dermoid cyst between the rectum and the sacrum. The wall of the cyst can be seen by opening wide the incised fistula, and unless it is excised, the fistula will not heal.

Idiosyncrasy to Morphin in the Aged.—Tauszk states in the *Ungarische Med. Presse* that he has frequently noticed that elderly men and women who have never taken opium or morphin, exhibit symptoms of intoxication after its administration, showing an idiosyncrasy. The repetition of very small doses, however, seems to induce tolerance and the drugs can then be given as indicated.

Prizes Offered in Mexico.—The National Academia de Medicina offers two prizes of 500 pesos each, for the best article on the subjects: "Means that should be adopted, 1, to prevent abortions and still-births, and 2, to diminish the number of deaths in the first five years of life." The communications must be in Spanish, sealed, and sent to the secretary of the Academia, J. G. Uruena, before October, 1902.

Deficiency in Preliminary Qualifications Among Graduates in Medicine.—Dr. Henry Beates, president of the Pennsylvania State Board of Medical Examiners, claims that of the 407 candidates before that board for examination last month 89, or less than 25 per cent., failed. The Board completed its sessions at Atlantic City, N. J., recently. "It is the commercialism of the medical schools that is the cause of so many rejections," said Dr. Beates. "The papers of this examination prove clearly that the medical colleges continue to admit students who are utterly illiterate. These students can not pass even the simplest rudimentary examination, and to them medicine is a study entirely beyond comprehension. Just so long as these colleges admit men of little or no preliminary education there must be a large percentage of rejections when they take the board examinations. I wish to say emphatically that the granting by a college of diplomas to such men is a fraud." —*N. Y. Med. Journal.*

Early Diagnosis of Tuberculosis by the Average Temperature.—A French physician, J. Tétau, publishes in the *Archives Méd. d'Angers*, the results of long and extensive research to the effect that with temperature as a basis all mankind can be grouped into three classes: Those with an average temperature of 37 to 37.5 C., showing normal organic processes going on in the organism; those with an average temperature below 37, showing diminished rates of organic processes, and revealing that the subject has an arthritic or herpetic tendency. Lastly, those with an average temperature above 37.5, showing an exaggeration of the organic processes, the soil on which tuberculosis develops. Tétau takes the temperature in the axilla, under the same conditions, for ten to fifteen days and then determines the average. If this average is below 37, the diagnosis of tuberculosis can be excluded, even although other signs point that way. If above 37.5, the subject is already phthisic, whether the tubercle germ has arrived or not, unless it is possible to promptly restore normal conditions.

Boy Shot Through the Brain—Recovery.—A case now under the care of Dr. John W. Chambers at the City Hospital, Baltimore, Md., has attracted considerable interest. Miss Ambler Hollyday, a daughter of Dr. J. Guy Hollyday, in the western suburbs, with two guests, was engaged in target practice in her father's lawn. They were using a 22-caliber Winchester repeating rifle, and while shooting at a bottle on the stump of a tree, shot a boy 8 years old, who was standing in his father's orchard some 230 yards away, beside his father and brother. The bullet entered the left side of the skull about midway between vertex and base and behind the motor area, went inward and forward and lodged under the skull somewhat higher up in the right side and in front of the motor area. He was immediately taken to the City Hospital. Dr. Chambers found on the right side an elevation, evidently due to the bullet having partly penetrated the skull on that side. He cut down, and lifting up some fragments of bone, found the bullet. The patient was at that time but semi-conscious. There was some oozing of brain tissue through the opening which was found to be free from disease germs. The temperature was as high as 104, but all that has now passed away, the boy is perfectly conscious, with senses perfect and practically well. The result is somewhat unusual, and is to be ascribed to the small size of the ball and the escape of vessels and important nerves and nerve-centers.

Newspapers and the Medical Profession.—The majority of newspapers seem to think they are pleasing their readers by villifying physicians on every occasion, but on the other hand there are as many which recognize the worth of the profession and acknowledge its value as it deserves. The motive for most of this animus of newspapers is the fact that the ethics of the profession is against advertising, and selfishness finds its vent in slander. In its issue for August 17 *American Medicine* prints two comments which go well together. It says:

"The Chicago *Tribune* editorially villifies the profession because it does not advertise, and ends a silly tirade of abuse of medical ethics, and of defense of medical men who print their papers in newspapers before they read them to the medical societies in the following words:

To the outsider this standard of conduct [condemnation of the medical advertiser] smacks strongly of insanity, and that it is not unreservedly subscribed to by doctors themselves is shown in the fact that the most 'ethical' of them all, while they would shrink in horror and dismay from paying regular advertising rates, are always accessible and even effusive when the interviewer comes around. It is ethical, in other words, to blow one's own horn free in the news columns, but heterodox and unprofessional to advertise and pay for it. That seems to be the sum and substance of medical ethics.

"The Cincinnati *Post* the same week says:

When there is light, pure water, pure air and sanitary sewers in or connected with every school house in Cincinnati, there will be less sickness—and less business for the doctors. The men who have indorsed the *Post's* investigation are working earnestly and honestly against their own financial welfare. Why? Because there isn't one doctor in a thousand who isn't laboring to a large extent for the good of humanity. They have ambition to be successful as a spur and also a desire to be of use to the community. They do not work for money alone. The cry for universal cleanliness comes from the doctors. They are in favor of every idea, invention, thought or act that will prevent disease and suffering and add to the physical comfort of the people. There isn't a practical move for the physical betterment of mankind that does not find them ready to co-operate and lead when able and strong leaders are needed. Above and beyond all that lies the fact that there is little selfishness in the profession. The physicians of Cincinnati, as a body and individually, are working for the health of the people, and it is in many instances a labor of love.

"We hope every physician in or near Cincinnati is a subscriber to the *Post*, and we also hope that in Chicago ———."

To the above might be added another newspaper expression, this time from the Rochester *Democrat and Chronicle*. After giving an account of the death of the Emperor Frederick, and the unhappy relation thereto of Sir Morel Mackenzie, that newspaper says:

"After Prince Frederick became emperor he lived about three months—the event of his death satisfying the physicians throughout Europe that the great throat specialist of London had made a diagnosis in the interest of political aspirations of a princely family rather than in accordance with the rigid rules of practice adhered to by the medical profession. It is stated in this connection that Dr. Mackenzie lost a good part of his practice, and died of a broken heart. The medical profession did not countenance his action, and left him to his own devices. If this relation is true, the experience of the distinguished physician is a striking example of the integrity of the great mass of medical practitioners and their devotion to the truths of science."

Virchow on the Bovine Tuberculosis Question.—Virchow calls attention to his statements published as long ago as 1863, in regard to the distinction between human and bovine tuberculosis. He observes that he has never been able to understand how any one could maintain their identity. At the same time, he has occasionally encountered a case of peritoneal tubercu-

losis in which the proliferations were so extraordinarily numerous and extensive, to an extent far beyond that otherwise observed in man, that he has always suspected the cases to be instances of bovine tuberculosis—"perlsucht" or pearl disease —transmitted to man in his food. He believes that Koch is too extreme in excluding this possibility. Virchow also emphasizes the necessity of restricting the term tuberculosis to actual tubercle formation. The constituent elements of the tubercle are, not the bacilli, but the cells proceeding from the living body, whether due to irritation from the tubercle bacillus or not. The mere presence of the tubercle bacillus does not necessarily make a tubercle. We must distinguish between the actual, pathologic tubercle and the merely bacteriologic condition. Hitherto any formation in which tubercle bacilli have been discovered has been dubbed forthwith a tubercle. Both bovine "pearl disease" and lupus in man have been regarded from this point of view, and even anatomic parts in which a tubercle bacillus is encountered now and then. Henceforth, we must be more discriminating and recognize that there are not only bacillary tubercles and bacillary hepatization, but also non-bacillary, and that every formation containing a tubercle bacillus is not necessarily a tubercle. Another point emphasized in his communication, which is published in the *Berlin. Klin. Woch.*, of August 5, is that bacteriologists have hitherto failed to pay attention to the quantity of the bacilli. They always act as if a single typhoid or cholera bacillus were inevitably the progenitor of countless millions, while Virchow believes that this does not invariably follow. He is convinced that the danger of infection is slight if the quantity of the bacilli introduced into the organism does not surpass a certain number.

Book Notices.

CRAZES, CREDULITIES AND CHRISTIAN SCIENCE. By Charles M. Oughton, M.D. Cloth. Pp. 121. Price, $1.00. Chicago: E. H. Colgrove. 1901.

DR. OUGHTON has done what others have done before him—showed up the absurdities, the follies, and the absolute senselessness of "christian science." But what is the use? Any one who uses argument against the vaporous verbiage that emanates from the pen of the founder of this sect will have his pains for nothing. All the logic and reason and argument in the world will have no effect on those who once allow themselves to become controlled by such beliefs as influence the followers of Mrs. Eddy. Logic has no influence when sophistry is in the field. However, as an argument against the teachings of "christian science" to put into the hands of those who are thinking about the matter this book is to be commended.

ESSENTIALS OF SURGERY. Together with a Full Description of the Handkerchief and Roller Bandage. Arranged in the Form of Questions and Answers Prepared Especially for Students of Medicine. By Edward Martin, A.M., M.D., Clinical Professor of Genito-urinary Diseases in the University of Pennsylvania. Illustrated. Seventh Edition, Revised and Enlarged. With an Appendix containing Full Directions and Prescriptions for the Preparation of the Various Materials Used in Antiseptic Surgery. Also Several Hundred Receipts Covering the Medical Treatment of Surgical Affections. Pp. 342. Price, $1.00 net. Philadelphia: W. B. Saunders. 1900.

In this edition the author has revised the whole work and added a section on the treatment of appendicitis. The contents and arrangement form a good groundwork in surgery for the student.

A MANUAL OF OTOLOGY. By Gorham Bacon, A.B., M.D., Professor of Otology in Cornell University Medical College, New York. With an Introductory Chapter by Clarence John Blake, M.D., Professor of Otology in Harvard University. Second edition. Revised and Enlarged. With 114 Illustrations and 3 Plates. Cloth. Pp. 422. Price, $2.25. New York and Philadelphia: Lea Brothers & Co. 1900.

The fact that a new edition of this work has followed closely upon the publication of the first, shows the demand existing for a handy manual on the diseases of the ear. The general practitioner is nowadays desirous of being able to recognize and treat the otitis media consequent upon scarlet fever, diphtheria and other throat affections. The series of illustrations has been enlarged and improved, and the operative treatment of mastoiditis has been more fully considered than in the previous edition.

ANNUAL AND ANALYTICAL CYCLOPEDIA OF PRACTICAL MEDICINE. By Charles E. de M. Sajous, M.D., and one hundred Associated Editors. Assisted by Corresponding Editors, Collaborators and Correspondents. Illustrated with Chromolithographs, Engravings and Maps. Volume VI. Cloth. Pp. 1043. Price, $5.00 per volume. Philadelphia, New York, Chicago: F. A. Davis Co. 1901.

This is the last volume of an excellent work, and the largest of the series. It contains an index to the six volumes, which gives one an idea of the mass of information the complete series contains. The amount of work necessary to condense, systematize and co-ordinate all the vast amount of medical literature that these volumes represent has been enormous and can be appreciated only by those who have attempted such a task, though in a less pretentious manner. The work covers every branch of medical knowledge, and brings the literature of each up to recent times in such a manner that it can be referred to easily and with satisfaction. The work is not a text-book, or a substitute for text-books, but rather a supplement to them, as it were. This last volume contains many complete articles that are deserving of mention, among them being Surgery of the Stomach and Intestines, by W. W. Keen and M. B. Tinker; Syphilis, by G. Frank Lydston; Surgery of the Urinary System, by J. W. White and A. C. Wood; Diseases of the Uterus, by H. T. Byford; Diseases of the Adnexa, by E. E. Montgomery; Tumors of the Brain, by J. T. Eskridge; Typhoid Fever, by J. E. Graham, and other equally noticeable contributions. The index is full and complete, but it seems to us that it would have been much more satisfactory to have references made to volumes and pages rather than to subjects, as has been done. The illustrations while not numerous are excellent, and the complete series is a splendid monument to the indefatigable author and his corps of assistants.

RHINOLOGY, LARYNGOLOGY AND OTOLOGY AND THEIR SIGNIFICANCE IN GENERAL MEDICINE. By E. P. Friedrich, M.D., Privatdocent at the University of Leipzig. Authorized Translation from the German. Edited by H. Holbrook Curtis, M.D., Consulting Surgeon to the New York Nose and Throat Hospital. Cloth. Pp. 348. Price, $2.50. Philadelphia and London: W. B. Saunders & Co. 1900.

The contributions of the author and translator to current literature in the range of this special work, would lead one to expect much from this, and an examination of the volume is not disappointing. The work of the translator is to be commended. This volume makes clear many subjects that in other text-books have only vexed the minds of many practitioners. The subjects are discussed in a clear and scientific manner, with plain, but elegant diction, and numerous cases are cited which serve to add interest and to elucidate points under consideration.

This volume treats of the relation to diseases of the ear, nose, and throat of diseases of the respiratory, circulatory, and digestive organs; of diseases of the blood and chronic constitutional diseases; of diseases of the kidneys, skin and sexual organs; of the eye, the nervous system, and of various intoxications. The chapter devoted to the nervous system and its relation to diseases of the ear, nose, and throat will be found comprehensive, instructive and valuable. Nothing of importance seems to have been overlooked by the author.

In view of the important position that has recently been accorded to diseases of the blood, the appearance of a chapter in this work on changes produced in the ear, nose, and throat by blood diseases, should be a subject of professional congratulation. It is a thoroughly practical volume, which will be especially appreciated by general practitioners who are most anxious about the diagnosis of these diseases and desire specific information along this line.

Married.

M. H. BELL, M.D., to Miss Ada Robinson, both of Memphis, Tenn., August 1.

IRA D. ISHAM, M.D., to Mrs. Buna Padgitt Fort, both of Chicago, August 17.

A. G. EVERETT, M. D., to Miss Annie Semmes, both of Memphis, Tenn., August 6.

DANIEL G. SIMPSON, M.D., to Miss Luella Conzett, both of Warren, Ohio, August 8.

JOHN W. FUQUA, M.D., Urbana, Ill., to Miss M. Ruth Mason, Macomb, August 14, at Ottawa.

CHARLES KAHN, M.D., to Miss Florence Dyer, both of Joliet, Ill., at Bay View, Mich., August 17.

HENRY P. ANDERSON, M.D., to Miss Florence Northway, both of Toronto, Ont., August 14, at the home of the bride.

FRANK EUDORAS WAXHAM, M.D., Denver, Colo., to Miss Alice Elizabeth Welles, Detroit, Mich., August 12, at the home of the bride.

Deaths and Obituaries.

James Alexander Williams, M.D., Rush Medical College, Chicago, 1863, Bellevue Hospital Medical College, 1866, died from apoplexy at Armonk, N. Y., August 15, aged 61. After the civil war, in which he served as assistant surgeon of the 135th Illinois Infantry and subsequently as surgeon of the 50th Illinois Infantry, he practiced for a time in Mattoon, Ill., but soon went to New York City and there remained until a few months before his death.

Thomas Sappington, M.D., University of Pennsylvania, Philadelphia, 1839, a grandson of one of the incorporators of the University of Maryland, died at his home in Baltimore, August 11, aged 85. He practiced in Frederick County for twelve years, and then moved to Baltimore, where he practiced until the time of his retirement, ten years ago.

Robert L. Crooks, M.D., Fort Wayne College of Medicine, 1880, while driving across the track five miles west of Van Wert, O., was struck by a train and killed, August 12. He was formerly mayor of Convoy, O., at which place he practiced, and was coroner of Van Wert County. He was a member of the American Medical Association.

John A. Duncan, M.D., McGill University, Montreal, 1884, was a passenger on the steamer *Islander,* and was drowned when that vessel sank off the Alaskan coast, August 15. He was treasurer of the Council of the College of Physicians and Surgeons of British Columbia, and was a practitioner at Victoria.

John Barnhardt, M.D., a pioneer physician of Canada, died at Toronto, where he has made his home for the past two years, August 9, aged 88. He first practiced in York and later at Streetsville. He afterward moved to Owen Sound, where he lived and practiced many years until his retirement.

Henry M. Downs, M.D., University of Michigan, Ann Arbor, 1880, died from cirrhosis of the liver, at his home in Kansas City, Kas., August 13, aged 41. He was for two years on the staff of the Osawatomie Insane Asylum. He was a member of the Kansas City (Mo.) Academy of Medicine.

Robert Barnwell Rhett, M.D., Medical College of the State of South Carolina, Charleston, 1879, died at St. Francis Xavier Hospital, Charleston, August 7, from typhoid fever, aged 47. He was Dean of the Charleston Medical School, and a member of the American Medical Association.

R. L. Boynton, M.D., Southern Medical College, Atlanta, 1889, until recently a practitioner at Geneva, Ga., died at his home in Columbus, Ga., August 9, from pulmonary tuberculosis, aged 38. His death was hastened by the death of his wife and an infant child on July 21 last.

Wiley Fussell, M.D., Atlanta Medical College, 1893, was waylaid and instantly killed about ten miles east of Fitzgerald, Ga., August 12, by a man with whom he had previously quarreled. He was a practitioner of Whitley, Ga.

Asa T. Fricks, M.D., Washington University School of Medicine, Baltimore, 1869, of Rising Fawn, Ga., was shot and killed, August 10, while horseback riding, as the result of a quarrel of long standing.

Edward G. Beeson, M.D., formerly assistant surgeon of the 39th Infantry, died at Marshalltown, Ia., August 15, from illness contracted while serving in the Philippines, aged 32.

Arthur L. Emerson, M.D., Medical School of Maine, Brunswick, 1878, died suddenly at his home in Chester, N. H., August 16, aged 52. He formerly practiced in Manchester.

George H. Long, M.D., Missouri Medical College, St. Louis, 1854, died from a stroke of paralysis, at his home in Barry, Ill., July 29, aged 71.

Edwin H. Cooper, M.D., Bellevue Hospital Medical College, New York, 1873, died at his home in Henderson, Ill., after a long illness, August 15.

Joseph H. Osterstock, M.D., University of Pennsylvania, Philadelphia, 1872, died at his home in Easton, Pa., after a short illness, June 30, aged 65.

Burns H. Dever, M.D., Kentucky School of Medicine, Louisville, 1882, died from appendicitis, at his home in Hume, Ill., August 14, aged 42.

Timothy S. Fish, M.D., Detroit Medical College, 1873, died at his home in Wolcott, N. Y., from heart failure, August 10, aged 55.

Mark M. Warren, M.D., Southern Medical College, Atlanta, 1889, died suddenly at his home in Macon, Miss., August 13.

George B. Caldwell, M.D., College of Physicians and Surgeons, Baltimore, 1886, died at his home in Newberry, S. C., July 5.

Edward P. Hay, M.D., University of Buffalo, 1899, died in the German Hospital, August 10. He practiced in Buffalo.

Fred J. Tompkins, M.D., Albany Medical College, 1885, died at his home in Lansingburg, N. Y., August 12.

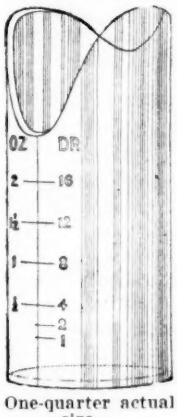
Augustus V. Park, M.D., Rush Medical College, 1883, died at his home in Chicago, August 14, aged 50.

New Instrument.

NASAL DOUCHE CUP.

W. J. EVANS.
NEW YORK CITY.

This cup has been designed to meet the demand for an instrument for washing out the nasal cavity, which could be used without fear of injury to the breathing passages, or forcing of fluid into the Eustachian tubes. It admits of the natural method of cleansing the nose. The fluid is placed in the cup, the higher curve of the rim being adjusted beneath the nostrils. The cup is tilted until the liquid enters the nostrils, then, closing the mouth, a slight drawing in of the breath causes the solution to enter the nose and naso-pharynx, thus bringing it in contact with all parts of the nasal mucous membrane. The solution may be allowed to pass to the back of the throat, and be expelled through the mouth. If it is desired to douche one nostril at a time, this may be easily accomplished by alternately pressing the elevated rim of the cup against the wing of the nostril, thus completely closing it.



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Societies.

COMING MEETINGS.

Rocky Mountain Inter-State Medical Association, Denver, Colo., Sept. 3-4, 1901.
American Association of Obstetricians and Gynecologists, Cleveland, Ohio, Sept. 17-19, 1901.
American Academy of Railway Surgeons, Chicago, Sept. 12-13, 1901.
Mississippi Valley Medical Association, Put-in-Bay, Sept. 12-14, 1901.
Conference of State and Provincial Boards of Health of North America, Niagara Falls, Sept. 13-14, 1901.
American Public Health Association, Buffalo, Sept. 16-20, 1901.
Medical Society of the Missouri Valley, St. Joseph, Mo., Sept. 19, 1901.
Medical Society of the State of Pennsylvania, Philadelphia, Sept. 24-26, 1901.
American Electro-Therapeutic Association, Buffalo, Sept. 24-26, 1901.
Utah State Medical Society, Provo City, Oct. 1-2, 1901.
Idaho State Medical Society, Pocatello, Oct. 3-4, 1901.
Tri-State Medical Society of Alabama, Georgia and Tennessee, Nashville, Tenn., Oct. 8-10, 1901.
Wyoming State Medical Society, Evanston, Oct. 8-9, 1901.
Vermont State Medical Society, Bellows Falls, Oct. 10-11, 1901.
New York State Medical Association, New York City, Oct. 21-24, 1901.

Muldraugh Hill (Ky.) Medical Society.—At the meeting of this Society held at Elizabethtown, August 8, the following officers were elected: Dr. Aloysius G. Blincoe, Bardstown, president, and Dr. Argus D. Willmoth, Rineyville, secretary.

Council Bluffs (Ia.) Medical Society.—The thirty-fifth annual meeting of this Society was held August 8, and the following officers were elected: Dr. Donald Macrae, president; Dr. J. H. Cole, vice-president, Dr. Frank Dean, secretary, and Dr. Henry B. Jennings, treasurer.

Texas State Association of Health Officers.—At the meeting of this Association held in Dallas, August 6, officers were elected for the coming year, as follows: President, Dr. Isaac J. Jones, Austin; vice-president, Dr. William H. Blythe, Mt. Pleasant, and secretary and treasurer, Dr. James E. Wilson, Dallas. The next meeting will be held in Austin.

Erie County (N. Y.) Hospital Alumni Association.—The former internes of the hospital met at Buffalo recently and organized this Association, electing the following officers: Dr. George Ward, Staten Island, president; Dr. Milton P. Messinger, Swormville, vice-president; Dr. Frederick W. Filsinger, Buffalo, secretary; Dr. Frederick H. Mills, Buffalo, treasurer, and Dr. Louis H. Beyer, Buffalo, librarian.

Therapeutics.

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment will be answered in these columns.]

Treatment of Inebriety Outside of Hospitals.

The following outline of treatment is the plan of Charles L. Dana, of New York, as published by the *Med. Rec.*: The patient, according to Dr. Dana, should stop drinking and usually smoking, and take for three weeks a mixture of nux vomica, capsicum and cinchona as follows:

℞ Tinct. nucis vom. ..... ℥i 32
Tinct. capsici ..... ℥i 4
Tinct. cinchon. rubræ ..... ℥v 160

M. Sig: One teaspoonful three times a day, increased by twenty drops daily to half an ounce three times a day.

He states that the maximum dose should be continued for a week, and then reduced as it was increased. At the same time he is in the habit of giving two teaspoonfuls of sodium bromid daily when the patient is nervous, irritable or troubled with insomnia. The patient should be fed well and very often, and avoid getting tired or hungry. When the desire for drink comes on the patient should be told to take two teaspoonfuls of the above mixture of nux vomica and cinchona, to which is added 1/120 grain of atropin sulphate, and he should take hot milk or beef tea to relieve the fatigue. After two weeks' rest from medicine, the course should be repeated under the supervision of the physician. After a second course, a month's interval may be allowed and then the treatment repeated, and so on.

For Chordee.

The following is recommended for the relief of chordee, by Dalton, in *Edin. Med. Jour.*:

℞ Liq. morph. hydrochlor. ..... m. xv 1
Cocainæ hydrochlor. ..... gr. ss .03
Aq. destil q. s. ad ..... ℥ii 8

M. Sig.: Inject into the urethra and hold five minutes, just before retiring.

He states that the bowels must be kept freely open by giving a cathartic pill every third day during the acute stage and avoid saline purgatives. The urine should be kept alkaline by potassium bicarbonate and acetate combined with the tincture of hyoscyamus.

Treatment of the Cough in Tuberculosis.

Dr. L. Weber, in *New York Med. Jour.*, recommends the following in the treatment of cough and general irritability:

℞ Sodii bicarb. ..... ℥i 4
Morph. sulphates ..... gr. i .06
Aq. Laurocerosi ..... ℥i 4
Aq. chloroformi ..... ℥vi 192

M. Sig.: One to two teaspoonfuls in two tablespoonfuls of water every three hours.

To combat the disease, instead of prescribing creosote in capsules mixed with oil, he recommends the following:

℞ Creosoti
Alcoholis āā ..... ℥i 32

M. Sig.: Ten drops in half glass of milk after meals.

Treatment of Specific Ulceration of Pharynx.

C. A. Parker, in the *Month. Encyl. of Med.*, states that in all forms of tertiary syphilis of the pharynx the combination of potassium iodid internally and mercurial inunction is especially useful and should be employed early. In tertiary ulceration, the ulcer should be thoroughly cleansed and insufflated with iodoform or in some cases with heated calomel. If pain is present it will be relieved by applying orthoform locally; one insufflation of this will usually relieve the pain for twenty-four hours. The gargle for the patient to use at home should be composed of the following:

℞ Potassii chloratis ..... gr. x .66
Lotionis nigræ ..... ℥ss 16
Aquæ q. s. ad ..... ℥i 32

M. Sig.: Use as gargle twice a day to relieve pain and cleanse the throat.

Medical Treatment of Appendicitis.

Rosewater, in *Med. Record*, states the bowels should be evacuated by administering mild chlorid of mercury followed by a saline laxative. Give a high enema of the normal saline solution if an abscess can not be made out. The patient should be constantly kept on his back. Milk should constitute the diet, which serves the purpose better when predigested. Opiates should be prohibited, but ice applications used instead. For nausea small doses of calomel and cracked ice are good, and for the nervous symptoms a combination of salol, phenacetin and caffein citrate is of greatest value. Use stimulants when necessary. Give potassium iodid in three-grain doses every 4 hours. This will hasten absorption of the exudates.

Treatment of Bubo.

Frederic Griffith, in *New York Med. Jour.*, states that a bubo is, until pus-formation takes place, a local affection, and the aim should be, in the early treatment, toward the prevention of this change by the employment of abortive measures.

The application at bedtimes of an ice bag, a towel wrung out in boiling water, or a flaxseed poultice, will, if carefully carried out with energetic treatment of the origin of the infection, allay the trouble in at least one-third of the cases. He also recommends the following to be applied daily:

℞. Ung. hydrargyri
Ung. belladonnæ
Ung. ichthyolis ãã 3ii 8

M. Sig.: Apply locally once a day.

In cases where puncture is made early for the relief of pain, and the infected gland will not discharge, 5 or 10 drops of pure carbolic acid are to be injected through a hypodermic syringe into the center of the mass of hardened cellular tissue. Should the action be too great, alcohol 95 per cent. will neutralize the effect if injected soon after the introduction of the acid.

The Best Way of Prescribing Calomel as a Purgative.

In some very interesting essays upon this subject in the *New York Med. Jour.*, a study as to the best time of administration as well as the best method of administering is presented by the different writers. According to Dr. E. M. Merrins, in patients particularly difficult to purge, as in plethoric and sthenic individuals requiring a thorough cleansing of the liver, calomel should be prescribed in two medium doses combined with other drugs to increase glandular secretion, as follows:

℞. Hydrarg. chloridi mitis.		
Sodii bicarb. ãã .....gr. vi		36
Pulv. jalapæ .....gr. v		30
Resinæ podophylli .....gr. 1/4		015

M. Ft. chart. No. ii. Sig.: One powder to be taken at eight and the other at ten o'clock, to be followed by a dose of magnesium sulphate in the morning.

Dr. J. B. Corsiglia states that the best way of prescribing calomel for its purgative action is in small doses, one-sixth of a grain for an adult, repeated every hour till twelve doses have been given, always associated with small doses of sodium bicarbonate and sugar of milk. A seidlitz powder should follow. His reasons are as follows: The sodium bicarbonate prevents the griping, the sugar of milk helps its eliminating power. A slow but steady action of the calomel upon the intestinal glands is desired so as to allow a gradual escape of the bile. On the other hand, with a single dose the glands are overstimulated, giving them more work to perform than nature has designed and as the result they are left sluggish and weak.

Dr. B. E. Henrahan states that by the action of nitric or nitro-hydrochloric acid, calomel is slowly converted into corrosive sublimate; the chlorids also produce corrosive sublimate; it should therefore not be prescribed at the same time with ammonium chlorid or nitro-hydrochloric acid. The power of calomel to salivate is increased by long trituration with sugar of milk, perhaps on account of the extremely fine division to which it is brought. When used as a purge calomel should be used in doses of one-sixth to one-half grain every fifteen minutes until one or two grains are given. The reason that small doses are as efficient is that only the calomel which is changed into the gray oxid is active and as there is only a small amount of alkaline juice in the intestine, if calomel is taken in large doses, the greater portion escapes unchanged. In diarrhea of children or infants who have flatulence, a fetid breath, and ill-smelling green stools, he recommends the following:

℞. Hydrarg. chloridi mitis		
Pulv. ipecac. ãã .....gr. i		06
Sacch. lactis .....gr. xx	1	33

M. Ft. chart. No. x. Sig.: One powder to be taken three times a day.

Treatment of Neurasthenia.

M. Allen Starr, in *New York Med. Rec.*, states that in neurasthenia, which often precedes melancholia, and which has for its symptoms headache, dull pressure in the head and back of the neck, sensations of fulness in the head with disorders of circulation, digestion and elimination, the treatment should be as follows: The diet should consist of meat, fish, oysters, rice, macaroni and hominy; but he states that milk and eggs, potatoes, turnips, beets and tomatoes do not as a rule agree. All stimulants should be avoided. For the digestive tract he recommends the following:

℞. Sodii salicylatis .....gr. x		66
Sodii phosphatis 3i	4	
Sodii chloridi 3ss	2	

M. Sig.: This powder to be taken first thing in the morning.

To counteract the toxic agent in the intestinal tract he recommends the following:

℞. Sodii sulphocarbol. .....gr. v		30
Potassii permangan. .....gr. i		06

M. Fiat capsula (shellac) No. i. Sig.: One such capsule three times a day on an empty stomach. [The foregoing is put up in shellac as it will then be insoluble in the stomach, but will dissolve in the alkaline media of the intestine.]

As a substitute for the above intestinal antiseptic he recommends the following:

℞. Salol .....gr. v		33
Olei ricini .....m. x		66

M. Fiat capsula No. i. Sig.: One such three times a day. before each meal; or:

℞. Sodii benzoatis .....gr. ii		12
Zinci sulphocarbol .....gr. i		06
Beta-naphthol. .....gr. i		06

M. Fiat capsula No. i. Sig.: One such three times a day.

Treatment of Tapeworm.

Margossian, as noted in *Phil. Med. Jour.*, states that he was unsuccessful in removing the head of a tapeworm from a patient, who had been suffering for ten years, by administering ten-drop doses of the oleoresin of male fern. So he determined to find out the merits of the drug by administering it in one-half ounce dose at one time. Within two hours' time the expulsion of the tapeworm, including the head, took place. Since then he has treated five other cases after the same plan with as good success. No complications or symptoms of poisoning were present.

Medicolegal.

Condition of Brain may be Shown by Photograph.—The testimony of the experts, in the homicide case of Monson vs. State of Texas, showed that there was a blow on the left side of the head of the deceased which fractured the skull for an inch or so, and that on the opposite side of the head and on the brain was clotted blood. In connection with the expert testimony, the state was permitted to introduce before the jury a photograph of the head of the deceased, showing the condition of the brain after the removal of the skull at the autopsy, which photograph, the expert witnesses stated, correctly represented the conditions which they purported to show. This was objected to. But the Court of Criminal Appeals of Texas does not consider that it was error. It says that it does not believe that it was calculated to unjustly prejudice the rights of the accused before the jury, while, under the authorities, it believes this character of evidence is admissible.

Fifteen Thousand Dollars for Loss of Legs.—While it thinks the amount large—much larger than it would have awarded if the case had been submitted to it to assess the damages—nevertheless, the Court of Appeals of Kentucky affirms, in Illinois Central Railroad Co. vs. Stewart, a judgment for $15,000, rendered on the third trial, for the loss of both legs by a switchman, his legs having been so left that artificial limbs could not be used, besides which it was evident that he must have suffered long and a great deal, and had his vitality greatly weakened by the injuries upon his body, his death finally occurring. What is a fair compensation to a man for such injuries it declares is hard to estimate; for not only is his capacity to labor destroyed, as in case of death, but the capacity to suffer remains; and not the least of this is mental suffering in such a situation. And, the law having

provided another form for the assessment of damages in cases of this character, the Court of Appeals says that, where punitive damages may be allowed by the jury, it is only in extreme cases, where the damages are so excessive as to strike the mind at first blush as unreasonable, that it can interfere. It also holds that evidence as to a bruise on the switchman's back which sloughed out, and other proof as to his treatment, were competent to show the character and extent of his suffering.

The Requirements of a Malpractice Case.—In the case of Wheelef vs. Bowles, where there was a charge of malpractice in the treatment of a dislocated shoulder, and it was contended, in defense, that the treatment rendered was proper and that all the trouble was owing to a negligent second dislocation after the case had been dismissed, the Supreme Court of Missouri, Division No. 2, has affirmed a judgment for the plaintiff for $4000 damages. It holds that the instructions given the jury were remarkably fair and contained every element necessary, requiring the jury to find that the defendant was employed by the plaintiff to set and heal her dislocated shoulder, and that he negligently treated and managed it, and, through his negligence, the dislocation was not reduced, and the plaintiff's shoulder had become permanently injured, lamed, and disfigured, and then leaving the jury to find the amount that the plaintiff should recover for such injury. It thinks this sufficient, especially as one of the instructions deprived the plaintiff of the right to recover her loss of time and services, because she was a married woman, and the services of a wife belong wholly to her husband. It it was desired to have the jury restricted to certain elements of damages, an appropriate instruction on that subject, it holds, should have been offered. By the fourth instruction given the jury were told that in determining this case they were to consider that the defendant did not warrant a cure, but his contract, as implied in law, was that he possessed that reasonable degree of learning, skill, and experience which was ordinarily possessed by others of his profession; that he would use reasonable and ordinary care and diligence in the treatment of the case; and that he would use his best judgment, in all matters of doubt, as to the proper course of treatment. The defendant was not responsible in damages for want of success, unless it was shown from the evidence to result from the want of ordinary skill and learning, and such as was ordinarily possessed by others of his profession, acting under like circumstances, or from want of ordinary care and attention.

Proof of Insanity—Records—Rule as to Continuing.—Insanity, the Supreme Court of Wisconsin says, in Hempton vs. State, is provable by circumstantial evidence mainly, all the acts and mental characteristics of the person whose sanity is in question, covering a considerable period of time prior to the particular time in question and thereafter as well, being material. On the trial of the issue of insanity in a prosecution for a criminal homicide, it is proper to show on the part of the accused that he was adjudged insane and committed to the State Hospital at a time previous to the homicide, and the facts on which the adjudication took place, and to that end introduce in evidence the reports of the examining physicians. The daily record of a patient at the Hospital for the Insane, kept in accordance with a statute requiring such a record to be kept, is admissible in evidence to show the mental characteristics of the patient while at the hospital in any judicial proceedings where the facts in that regard are material, under the general rule that a public record required to be kept for public purposes is admissible in a judicial proceeding where such matters are material. The doctrine, once insane always insane till the contrary is established by evidence, is not and never was an absolute rule. It never applied to occasional or intermittent insanity. It is only where the insanity is once proven to exist and to have been of the character likely to become permanent it properly applies. Moreover, the rule that a person adjudged insane continues so till the contrary is shown, applied to insanity of a nature liable to be permanent, is a rule of evidence subject to reasonable change by legislative will. And, under the statutes of Wisconsin, after a person has been on parole continuously from the hospital for the period of two years or more, the adjudication upon which he was committed to the hospital is no longer prima facie proof of insanity. The verdict of the jury, on the special issue as to the sanity of a person charged with a criminal offense at the time of the alleged commission thereof, that he was sane, precludes further inquiry as to mental impairment at such time, entirely excusing the accused from legal responsibility; but on the plea of not guilty, evidence is permissible tending to show a condition of mind—whether produced by the use of intoxicating liquor or any other cause—rendering the accused incapable of forming a specific intent to commit the crime of murder at the time of the alleged offense, and bearing on the character of the offense if he is guilty at all. On the question of whether, because of an abnormal mental condition, the accused, in a prosecution for criminal homicide, was capable of forming a design to kill, a material issuable question arises involving mental condition, which may be evidenced by proof of the use of intoxicating liquors or by any other adequate disturbing cause.

Current Medical Literature.

Titles marked with an asterisk (*) are noted below.

Medical News (N. Y.), August 10.

1 *The Condition of the Kidneys with Reference to the Employment of Diuretics. Arthur R. Elliott.
2 *The Therapeutics of Subacute and Chronic Heart Diseases. Thomas Satterthwaite.
3 Gouty Affections of the Kidneys. Richard K. Macalester.
4 Uremia and Its Differential Diagnosis. S. D. Hopkins.
5 The Cardio-vascular Changes of Renal Disease. J. N. Hall.
6 *Renal Functions and Life Insurance. Clinton G. Hickey.

Medical Record (N. Y.), August 10.

7 *The Propagation of Yellow Fever; Observations Based on Recent Researches. Walter Reed.
8 *Empyema of the Antrum of Highmore in Young Infants. Emil Mayer.
9 *The Selection and Sterilization of Muriate of Cocain for Spinal Anesthesia. William C. Riley.
10 A Case of Primary Epithelioma of the Uvula. Seymour Oppenheimer.
11 Multilocular Cyst of the Inferior Maxilla; Operation; Recovery. J. A. Otte.

Philadelphia Medical Journal, August 10.

12 Some Contrivances for Applying Carbonic Acid Douches for Therapeutic Purposes. A Rose.
13 *The Bucco-antral Route in Neurectomy for the Relief of Tic Douloureux. Gordon King.
14 A Case of Tic Douloureux, with Successful Removal of the Gasserian Ganglion; with Photograph of the Patient. Henry T. Williams.
15 *Diagnosis and Prognosis of Heart Disease. M. H. Fussell.
16 *General Remarks on Painful Affections of the Feet. Frank E. Peckham.
17 *Report of a Case of Raynaud's Disease. Benjamin F. Lyle and John E. Greiwe.

American Medicine (Philadelphia). August 10.

18 Expectant Treatment. A. Jacobi.
19 *Fusel-oil Poisoning with Special Reference to the Copper Reducing Substances Eliminated in the Urine. Thomas B. Futcher.
20 *Acute Dilatation of the Stomach. Julius Friedenwald.
21 *Two Cases of Vicious Circle, After Gastroenterostomy. (Concluded.) Theodore A. McGraw.

Boston Medical and Surgical Journal, August 8.

22 *Scientific Research: The Indispensable Basis of All Medical and Material Progress. (Concluded.) George B. Ferguson.
23 *A Critical Note upon Clinical Methods of Measuring Blood Pressure. William H. Howell and C. E. Brush, Jr.
24 *The Relation of Bodily Mutilations to Longevity. John Homans.
25 *The General Character of the Problems of Public Health Bacteriology. Hibbert W. Hill.
26 *Intracranial Pressure After Head Injuries. Walter B. Cannon.

New York Medical Journal, August 10.

27 *Cleft Palate and Its Association with Hare-lip. John H. Branth.
28 *Acute Lobar Pneumonia; a Pathological and Clinical Study of 120 Consecutive Cases Subjected to Postmortem Examination. John Lindsay Steven.

29 *Suggestions for a Study of Fats in Their Relation to Physiological Chemistry, Therapeutics and Toxicology. John Reid.
30 *The Home Treatment of Tuberculosis. Irwin H. Hance.
31 *A New Method of Testing for Lactic Acid. Mark I. Knapp.

St. Louis Medical Review, August 10.

32 Obstruction of Bowels. H. C. Dalton.
33 Remarks About Hemolysis. C. Fisch.

Cincinnati Lancet-Clinic, August 10.

34 *The Early Operation for Appendicitis from a Pathological Standpoint. J. G. Carpenter.
35 Some of the Evils of Married Life. Brose S. Horne.

Northwestern Lancet (Minneapolis), August 1.

37 A Brief Review of the Treatment of Diphtheria. J. C. Litzenberg.
38 Cure of a Case of Popliteal Aneurism by Pressure. Geo. Douglas Head.

Illinois Medical Journal (Springfield), August.

39 *The So-called Traumatic Neurosis. Harold N. Moyer.
40 *The Home Treatment of Tuberculosis. Robert H. Babcock.
41 The Inoculation Theory of Malarial Fever Through the Agency of Mosquitoes. S. E. Munson.
42 Diagnosis of Malaria in Children. Everett J. Brown.
43 That Ounce of Prevention. Charles B. Johnson.

Cleveland Medical Gazette, August.

44 A Case of Dermatitis Exfoliativa Neonatorum (Ritter). A. Ravogli.
45 Laboratory Feeding, with Especial Reference to the Modified Milk Fund. J. J. Thomas.
46 Substitute Feeding of Children. E. H. Lueke.
47 The Feeding of Children After the First Year. Miriam G. Kerruish.
48 Dosimetric Medication in Pediatric Practice. M. Borts.

Medical Dial (Minneapolis), August 1.

49 Events in the History of American Surgery—A Brief Review. Franklin Staples.

Buffalo Medical Journal, August.

50 *The Fan System of Heating, Ventilating and Air-Supply of Certain Buffalo Schools. Henry Reed Hopkins.
51 *Prostatic Hypertrophy. Marshall Clinton.
52 *Some Thoughts, in Lighter Vein, on the Practice of Medicine from a Business Standpoint. Devillo W. Harrington.
53 Charity by Proxy or Semi-Charity, and Its Disastrous Effect upon the Physician. Marcell Hartwig.
54 Gross Anatomy—A Brief Résumé of the Anatomy of the Kidneys. Byron H. Daggett.

Medicine (Detroit, Mich.), August.

55 Recent Progress in Bacteriology. D. H. Bergey.
56 Notes from the Children's Ward. Abraham Jacobi.
57 Fractures of the Clavicle. Carter S. Cole.
58 Removing the Eyeball: A Discussion of Some Methods. Frank Allport.

Louisville Monthly Journal of Medicine and Surgery, August.

59 *Miscarriage and Its Treatment. Walker B. Gossett.
60 *The Conduct of the Second Stage of Labor, in Private Practice. Edward Speidel.
61 *The Puerperium. John G. Cecil.
62 *Instrumental and Operative Obstetrics. Arthur T. McCormack.
63 *Some Interesting Experiences in Obstetrics. W. E. Sleet.

Brooklyn Medical Journal, August.

64 The Brooklyn Water Supply. Arthur S. Tuttle.
65 Tuberculosis of the Bladder. Homer E. Fraser.
66 Serum Therapy in Streptococcal Injection. Earl H. Mayne.

Oklahoma Medical Journal (Guthrie), July.

67 Obstetrics. S. E. Knight.
68 Has Medicine a Scientific Basis? U. L. Russell.

Albany Medical Annals, August.

69 Biographical Sketch of the Late Professor Maurice Perkins, M.D., of Schenectady, N. Y. Willis G. Tucker.
70 *The Bacteriology of Lobular Pneumonia, Especially in Adults. George Blumer.
71 *A Single Experience with Von Ruck's "Tuberculinum Purificatum. Wilfred S. Hale.
72 Some Observations on the Treatment of Cough. G. Franklin Smith.
73 A Case of Purpura Hemorrhagica. E. E. Hinman.

Canadian Journal of Medicine and Surgery (Toronto), August.

74 Ectopic Gestation. R. W. Garrett.
75 The Early Recognition and Treatment of Pulmonary Tuberculosis. Alexander McPhedran.
76 Remarks on Modern Views of the Sources of Typhoid Fever. J. J. Cassidy.

St. Louis Medical and Surgical Journal, August.

77 A Case of Keratosis Palmaris et Plantaris. A. H. Ohmann-Dumesnil.
78 Some of the Difficulties of Getting Europe to Adopt International Leper Law. Albert S. Ashmead.
79 An Ointment for Diseased Mucous Surfaces. A. S. MacDonell.
80 *Home Treatment of Tuberculosis. Lawrence F. Flick.

Virginia Medical Semi-Monthly (Richmond), July 26.

81 *Tonsillitis from the Standpoint of the General Practitioner. A. L. Gray.
82 Penetrating Gunshot Wound of the Abdomen. Thomas D. Burgess.
83 Clinical Value of Some of the Newer Hypnotics: Dormiol; Chloretone; Hedonal. Albert E. Brownrigg.
84 *A New and Original Method of Operating upon the Inguinal Canal. Jacob Michaux.
85 Autopsies, How Made, and Their Interpretation. C. W. Canan.

Medical Summary (Philadelphia), August.

86 Prolapsus of the Anus and Rectum. George J. Monroe.
87 Advertising vs. Ethics. Floyd Clendenen.
88 Typhoid Fever. S. A. Buchanan.
89 Disease and Old Age. J. L. Wolfe.
90 Natural Laws. W. F. Ball.
91 Methylene-Blue. Ira A. Marshall.
92 The Treatment of Typhoid Fever. Charles W. McIntyre.

Pediatrics (N. Y.), August 1.

93 Clinical Demonstrations at the New York Post-Graduate Medical School and Hospital. Augustus Caille.
94 *High Temperatures in Scarlatina and Measles, as Related to Gastrointestinal Toxins and Fermentation. Arthur DeVoe.
95 *Suppression of Urine. M. H. Fussell.
96 A Case of Taenia Saginata in a Child of Twenty-four Months from the Use of Raw Scraped Beef for the Relief of Chronic Intestinal Disturbance. D. J. Milton Miller.
97 A Case Resembling Morbus Caeruleus, Probably Due to a Dusting Powder Containing Acetanilid. Samuel W. Earp.

Medical Times (N. Y.), August.

98 Case of Brain Tumor. Samuel G. Dabney.
99 Two Cases of Secondary Hemorrhage. Ewing Marshall.
100 Genu-Valgum; Nephrectomy. J. R. Wathen.
101 Anemonin. Wm. F. Waugh.

Southern Practitioner (Nashville, Tenn.), August.

102 Annual Address before the Nashville Academy of Medicine. A. B. Cooke.
103 Ergoapiol (Smith) as an Emmenagogue and Oxytocic. M. A. Auerbach.

Maryland Medical Journal (Baltimore), August.

104 *The Prevention of Tuberculous Disease in Infancy and Childhood. S. A. Knopf.
105 *Registration of Tuberculosis. Lawrence Flick.
106 *Distribution of Tuberculosis in the City of Baltimore. C. Hampson Jones.
107 Care of the Indigent Tuberculous. H. Warren Buckler.

Carolina Medical Journal (Charlotte), July.

108 Exhibition of Three Cases. (Necrosis of ileum, etc.) H. A. Royster.
109 The Importance of Early Diagnosis and Treatment of Tuberculosis. J. P. Munroe.
110 The Conservative Treatment of Diseases of the Uterus. John Thames.
111 The Problem of Typhoid Fever in the Rural Districts of North Carolina. H. W. Lewis.

Dominion Medical Monthly (Toronto), July.

112 President's Address, Ontario Medical Association. Angus MacKinnon.
113 *Results of Experiments with Diphtheria Antitoxin at the Isolation Hospital, Toronto. E. B. Shuttleworth.

Atlanta Journal-Record of Medicine, August.

114 A Case of Splenectomy, with Remarks. J. P. Bryson.
115 Vaccination. Joseph Grindon.
116 The Physiological Therapeutics of Religious Mania. C. A. F. Lindorme.
117 Tonsillitis from the Standpoint of the General Practitioner. A. L. Gray.
118 A New Non-Surgical Treatment for Inflammatory Exudates and their Residua in the Female Pelvis. Hugo Ehrenfest.
119 An Unusual and Probably Unique Complication (General Emphysema) of Tracheotomy. E. C. Ellett.

Journal of Tuberculosis (Asheville, N. C.), July.

120 *Tuberculosis of the Upper Air Passages. Albert Rosenberg.
121 *Steps in the Prevention of the Spread of Tuberculosis. F. M. Pottenger.
122 *Tuberculosis Due to Toxemic States. T. D. Crothers.

123 *A Single Experience with Von Ruck's Tuberculinum Purifactum. Wilfred S. Hale.
124 A Contribution to the Question of People's Sanitaria. Hans Welcker.

Mississippi Medical Record (Vicksburg), August.

125 Report of Four Cases of Puerperal Eclampsia Treated with Norwood's Tr. Veratrum Viride. W. A. Johns.
126 Treatment of Typhoid Fever in the Tom Franklin Hospital, Columbus, Miss. May F. Jones.
127 Ergot in Obstetrics. E. P. Jones.
128 Treatment of Whooping Cough. H. H. Haralson.

Fort Wayne Medical Journal-Magazine, July.

129 *Puerperal Sepsis—A Plea for Greater Accuracy in Diagnosis, to the End that the Treatment May be More Rational and Effective. Miles F. Porter.
130 The Rationale of Subjective Healing. Smith Baker.

Kansas City Medical Index-Lancet, August.

131 Suggestive Therapeutics. Oliver McEuen.
132 Pharyngeal Adenoids and Their Treatment Viewed from the Standpoint of a Country Doctor. J. F. Welch.
133 *The Treatment of Acute Insanities. John Punton.
134 An Unusually Large Dermoid Cyst. W. J. Frick.
135 Some Remarks on the Treatment of Toothache and Other Forms of Neuralgia. A. Toepfer.

AMERICAN.

1. **Diuretics and Kidney Disease.**—Elliott classifies the diuretics and discusses their action. 1. Except in cases of irritant-epithelial diuretics (turpentine, cantharides, etc.), the entire class of diuretics may be said to exert its effect on the urine by acting indirectly through the circulation. 2. Owing to the necessity of sparing the kidneys all irritation, drugs given for diuretic purposes should act indirectly rather than directly, consequently the secretory diuretics are contraindicated in irritative and inflammatory renal conditions. 3. In functional urinary disorders, diuretics are mainly useful to overcome concentration and hyperacidity of the urine, and simple diluents and salines are the best. 4. In acute nephritis salines are permissible throughout and are beneficial by increasing elimination and clearing the tubules of inflammatory débris. Subcutaneous saline infusions are the best eliminants in desperate cases. 5. In chronic nephritis the cardio-vascular diuretics are most useful, owing to the fact that oliguria and dropsy are usually the results of circulatory failure. Dropsy under such circumstances, being of cardiac origin, may be benefited by cardio-vascular stimulants in case the kidneys are not too much damaged. 6. Dropsy of purely renal origin is not amenable to favorable influence by diuretics. 7. Although the morbid processes in the kidneys may give the primary suggestion, the condition of the heart and the circulatory apparatus in most cases determine the choice of an agent.

2. **Subacute and Chronic Heart Disease.**—The newer methods of treatment, according to Satterthwaite, consist in rest alternated with bodily activity, determination of blood to the periphery rather than venesection, and a careful rigid diet with stomachics if necessary. He holds that systemic invigorants or alteratives with or without mild cardiac sedatives should supplant the so-called heart stimulants now employed, reserving the latter for emergencies arising from complications such as pneumonia, advanced Bright's disease, diabetes, abdominal dropsy, and where the aim is merely to sustain life during the period of cardiac strain. He insists on the importance of exercise, but does not disparage rest, though too much of the latter tends to cause degeneration. Complete rest has been supplanted by rest alternated with bodily activity; venesection by the determination of the blood to the surface, with resistant exercise and carbonated baths; and hydragogue cathartics have been replaced by mild stomachics, laxatives and diuretics; and heart stimulants by general nerve stimulants or sedatives and nutrients. While drugs of the digitalis group are utilized chiefly for their diuretic action in renal complications, viz., parenchymatous nephritis or abdominal dropsy, drugs of this digitalis group, which includes strophanthus, convallaria and adonis, are always uncertain, and therefore always dangerous and should be employed either only when other remedies are inadvisable or when we are endeavoring merely to prolong life.

6. **Renal Function in Life Insurance.**—The urinary abnormalities, especially albuminuria, and their relation to life insurance are discussed by Hickey, who thinks that the medical examiner is justified in recommending for insurance any applicant (below middle life) whose urine may have shown albumin or casts or both, only after continued observation for a long time, and even then, only as a sub-standard risk. The only exception to this rule may be made in the case where, with other evidences of perfect health, the use of the centrifuge revealed only a few stray hyaline casts. After middle life the rule should be practically absolute against recommendation in this class of cases. In many cases near or past middle life the condition of the heart and blood vessels is important. The apex beat beyond the nipple line, an accentuated aortic second sound, with a moderate atheroma, with increased pulse tension should be suspiciously suggestive of a contracted kidney. In this condition of low specific gravity of the urine the albumin is often absent for days together, and special tests and delicate examinations are required.

7. **Yellow Fever.**—Reed gives a review of his experiments and the conclusions to which he has been led. He criticizes the evidence which is advanced against them, and says he has not found in the literature a case of infection by fomites reported that will bear intelligent criticism. His paper is a rather elaborate statement and a very strong argument in favor of his point of view.

8. **Empyema of the Antrum in Children.**—Mayer reports a case in addition to the dozen or so in the literature and discusses the condition generally. He is inclined to believe that infection of the antrum of Highmore is quite common in fatal cases of diphtheria and scarlet fever and probably may occur in some cases which end in recovery. In all reported cases the symptoms are the same: Fistula under the eye usually discharging pus, ectropion, one-sided purulent discharge from the nose with foul odor and eroded bone. Careful observation, especially in nasal diphtheria, may enable us to discover these cases. Incision, curettage and thorough drainage will be followed by complete cure in the vast majority of cases.

9. **Cocain.**—The sterilization of cocain for spinal anesthesia is apparently not always duly observed and Riley offers a method of dry sterilization which he thinks fills all requirements and which he gives as follows: Carefully selected muriate of cocain is broken in a mortar into moderately fine fragments and heated in a dry sterilizer to 110 C. for about twenty minutes and then bottled in a clean, dry bottle with a tightly-fitting rubber stopper. This insures a dry salt to begin with, which is quite essential for the after-process. Small graduated vials or glass tubes are taken and carefully cleansed, dried and flamed, and when cool such an amount of the cocain is weighed off into each as will make, when the vials are filled to this mark with sterilized water, a 2 per cent. solution. The mouth of the tube is then closely stoppered with a plug of freshly dry-sterilized absorbent cotton (150-160 C. for one hour). It is then placed in a dry sterilizer and the temperature gradually raised to from 145 to 150 C. and maintained at that temperature for from ten to sixty minutes. Ten minutes is usually sufficient time to fulfill all bacteriological requirements, but there might be a possibility of contamination with certain spores which would require the longer period. One hour's heating of this dried cocain at this temperature does not impair its efficiency, notwithstanding many statements in the books to the contrary. The advantages offered in this method are stated by him as follows: 1. Perfect sterility. 2. The product being dry it lasts an indefinite time, the only thing being necessary when required for use is to sterilize the outside of the container in any convenient manner except boiling—as, for instance, simply flame the cork and neck of the vial, allowing it to become cool before adding water. 3. No necessity to weigh or measure the cocain or water at the time of the operation. 4. Absolute efficiency.

13. **Bucco-Antral Route in Neurectomy.**—King has adopted the plan recommended by Fraenkel for neurectomy of

the trigeminus in obstinate neuralgia and reports two cases. He has modified the Fraenkel method somewhat in such a way as to simplify the procedure and resect a greater length of the nerve and at the same time to assure complete closure of the buccal wound by dispensing with the gauze drain. After incising the mucous membrane and periosteum covering the anterior wall of the antrum, he elevates the periosteum as far up as the infra-orbital foramen, divides the nerve at this point, and opens the entire canal into the antrum. This dispenses, in a measure, with the necessity for a strong light to illuminate the cavity in order to find the nerve in the deeper parts. He also finds no special advantage in a bony flap provided the periosteum is well sutured over the opening made in the anterior wall, as no depression of the cheek results from deficiency of the bone. He found it expedient to remove the nerve by twisting and evulsion instead of cutting through it. In conclusion he pleads for extracranial resection of the nerve trunks in cases of obstinate trifacial neuralgia before resorting to such dangerous operations as are required for resection of the Gasserian ganglion.

15. **Heart Disease.**—The methods of diagnosis of heart disease are reviewed by Fussell, who insists on the diagnosis of cardiac lesion being based on the size of the heart, on its rhythm, on the character of the first sound, and in some cases on the presence or absence of murmur. A heart may be much damaged and give no murmur. An extremely loud murmur may be present and yet the heart be fully competent.

16. **Painful Affections of the Feet.**—While we have apparatus for flat foot and other pedal derangements nowadays, some cases are still resistant, and Peckham speaks of the advantages of massage for such, and also the use of hot-air treatment. He found it of very much benefit in almost every painful case. To save expense he substituted a pail of hot water for the dry heat with very good results and he has been able to have massage given by members of the household instead of a trained operator in all cases. The exercises for the gymnastic work that have been most beneficial are those recommended by Whitman and are best done by the patient sitting, letting the legs rest across a chair or stool. Several cases are reported.

17. **Raynaud's Disease.**—Lyle and Greiwe report a case of Raynaud's disease passing into gangrene and ending in death with pathologic findings in the cord. They consider that we can not long look on Raynaud's disease as simply one of the disorder of the extremities, but rather as a disease of the extremities of the arteries, and we may have a consequent degeneration of not only the extremities, but in the internal organs as well. He thinks we have probably two classes of cases: 1. Those in which the exciting cause acts temporarily and, on cessation, its symptoms disappear. 2. Those in which the cause is yet unknown, acts on the peripheral vessels and causes changes in the caliber by proliferation of the endothelium.

19. **Fusel-Oil Poisoning.**—The literature contains but a few cases of poisoning by fusel oil, and Futcher here reproduces the few which have been reported and reports a couple of his own observation. He also notices Thierfelder and Mering's experiments and reports his own on dogs. His conclusions are as follows: 1. Fusel oil, when administered to animals, causes the elimination in the urine of combined glycuronic acid which reduces alkaline, copper and bismuth solutions and acts as a levorotation to polarized rays. 2. When taken by men it acts as a profound intoxicant, causing unconsciousness of several hours' duration. 3. In one of the cases it was followed by symptoms of hemiplegia. 4. In certain cases, fusel oil is a profound blood destroyer and causes methemoglobinuria. 5. In both cases it caused transitory nephritis. 6. In both patients a glycosuria lasting two or three days was produced. 7. In the two cases there was fairly conclusive evidence that combined glycuronic acid (gepaarte Glukuronsäure) was present in addition to glucose.

20. **Acute Dilatation of the Stomach.**—Little has been said about the acute form of gastric dilatation, though it has been noticed and reported by certain authors. The literature is reviewed by Friedenwald, who reports a couple of cases under his own observation, both due to sudden overloading of the stomach or some gross error in diet. There are certain characteristic symptoms which he notices. These are sudden and rapid distention of the stomach, pain and absence of peristaltic movements, absence of vomiting and diarrhea in the beginning but followed by intense and constant vomiting of greenish fluid, accompanied by great exhaustion. It is probable, as Friedenwald points out, that acute dilatation of the stomach does not occur more often because the stomach in most cases of acute indigestion relieves itself quickly by vomiting and diarrhea. It is, therefore, well to remember in all cases of dyspepsia the possibility of acute dilatation and to empty the stomach quickly and avoid the accumulation of fermented material, which may set up a permanent trouble.

21. **Vicious Circle After Gastro-Enterostomy.**—McGraw ends his paper in this issue with the following practical conclusions: 1. The "vicious circle" may occur whenever the duodenum becomes permanently distended, even though the efferent limb of the jejunum offers an open passage to the ingesta. In all operations of this kind, therefore, an entero-enterostomy should be added to the gastro-enterostomy in order that the duodenum may discharge its contents into the efferent portion of the jejunum. 2. It may also occur from obstruction due to spurs, twists, bends or other entanglements of the intestines. As such accidents may arise from a too short afferent limb of the jejunum, the anastomosis should always be made at such a distance from the duodenum as would make trouble from this cause impossible. The practice of turning the bowel around in order to make its peristaltic movements correspond with those of the stomach has no practical advantage whatever in cases of pyloric stenosis; but, on the contrary, complicates the operation and tends to form a trap in which the intestine may become entangled. It may besides drag the wall of the stomach into a fold which may obstruct the opening into the bowel. This method of joining the viscera should be discarded. 3. As the orifices of communication may, if made too small, contract and become obliterated, the opening should be made at least 5 cm. in length. The effects of any resulting spur-formation will be obviated by the entero-enterostomy. 4. The safest and best method of operating is that by the elastic ligature.

22.—See THE JOURNAL of August 3, p. 327.

23. **Blood Pressure.**—Howell and Brush have experimented with the methods of von Basch and Mosso, and give an analysis of their principles and utility. A number of experiments have been made in dogs on the diastolic and systolic pressure under varying conditions. The results are presented in a tabulated form. An examination of the table seems to justify the following: 1. The mean blood pressure as usually determined by means of the mercury manometer corresponds with a fair degree of accuracy with the arithmetrical mean of the maximum and minimum pressure. 2. Rise of blood pressure caused by an increased heart beat (section of both vagi) affects the diastolic pressure to a greater extent than the systolic pressure. 3. A fall of blood pressure occasioned by bacterial dilatation (section of both splanchnics affects systolic and diastolic pressures equally. In the section of one splanchnic, the fall affected the systolic more than the diastolic pressure, but the heart here was also affected, while section of the second splanchnic did not affect the heart at all and the physical effects of a purely vascular change would seem to be best shown under the latter conditions. 4. It possible for the systolic and diastolic pressure to be affected in opposite directions, as in one experiment in which section of both vagi was intentionally accompanied by a profuse hemorrhage. In this case the mean pressure remained unchanged, the diastolic pressure rising 16 mm. and the systolic pressure falling 15 mm. These experiments, as far as they go, indicate that the general trend of arterial pressure when unaccompanied by hemorrhage is given by instruments measuring either the systolic or diastolic pressure. When possible it is most desirable that the results of one method should be checked by the other. He points out the precautions advis-

able in the use of Mosso's apparatus, where the connections should be rigid and extensible to prevent loss of pulsation. The fingers should be warmed before placing them in the apparatus and a spring recorder of some kind used if the heart-beats are so rapid as to give an uncertain maximum and account of the results should be taken only when the subject has become accustomed to the procedure and is in a relaxed condition. In comparative observations the hands should always be at the same height to equalize the hydrostatic factor. Some precautions are necessary with the Gaertner tonometer, especially regarding the pressure ring; the subject should become accustomed to the proceedings, and also to equalizing the hydrostatic factors. It is necessary to bear in mind also that in men and women there are periodic oscillations of arterial pressure.

24. **Bodily Mutilations and Longevity.**—The relations of bodily mutilation to longevity and life insurance problems are noticed by Homans, who thinks it generally may be said that deprivation of any important part of the body reduces the chances for long life, and he goes over them theoretically. Applicants with skull injuries and loss of substance would be below average as risks; but without loss of substance and symptoms, they would be unaffected from the insurance standpoint. Loss of sight from injury is not necessarily bad for longevity, but where the eye has been removed for malignant growth the case is different. The blind in comparatively comfortable circumstances are as long lived as anyone so far as his experience goes. Losses of the upper extremities are more important the nearer the amputations have been made to the thorax. He finds, however, that the moral effects of such mutilations have to be considered. A well-insured income in such cases would be a safeguard. Amputations of the lower limb average much the same as those of the upper limbs as regards longevity. As a class, persons who have suffered amputations are not so long-lived as those unmutilated, but each case must be judged by itself. Injuries to the thorax such as removal of a small portion of one or two ribs for acute empyema, if successful, will not make a person uninsurable provided the lung functions are normal. Injuries to the heart when recovered from would cause declination. Abdominal mutilations as a rule increase the risk, excepting in cases of appendicitis. Persons who have had the appendix removed seem to have as good a chance for long life as any, and excision of small portions of the bowel, if successful, will likewise have little effect. It can not be told with accuracy what is the effect of oxarian operations, but he thinks that those who recover after hysterectomy for myomas have generally a greater probability of longevity than those who recover after ovariotomy, because myomata are seldom malignant. The possibility of ventral hernia is to be considered after abdominal operations. In conclusion, he thinks that people who have suffered amputation or other mutilations are likely to have their chances for long life lessened, but by careful selection many might be picked out who would be good subjects for life insurance.

25. **The Problems of Bacteriology.**—Hill points out the uncertainties, with increasing knowledge, of many of the decisions of bacterial problems in public health, noticing especially the changed views which have been occasioned by the greater knowledge of the allied types of pathogenic germs such as those of diphtheria, typhoid, etc. He tries to point out that the problems of the public-health laboratory in relation to disease are more especially epidemiologic and preventive and involve the study of the science of bacteriology itself as well as of the art.

26. **Intracranial Pressure.**—The conditions causing changes of intracranial pressure from injuries and their results are reviewed by Cannon, who describes the anatomy of the circulation of the cranium, especially of the cortex, the development of thrombosis, extravasations, etc. He finds mischief arises because the brain is surrounded by a rigid case; swelling of any part consequently compresses the only compressible part of the cranial contents, the blood vessels. Injuries to the brain interfere with its proper blood supply. This interference causes an increased osmotic pressure within the tissues, and a consequent taking-up of water from the surrounding plasma. The swelling and edema of the brain after head injuries is not due to passive transudation, as Bergmann and others have maintained, but is a result of active processes in the tissues themselves, a force many times greater than blood pressure, and amply sufficient to produce all the pressure and account for all the signs of intracranial tension which the symptoms of cerebral trauma often manifest.

27. **Cleft Palate.**—Branth gives the developmental mechanism of cleft palate and discusses its pathology. He holds that the same causes that produce rickets in children act in producing cleft palate. Heredity is also mentioned, though he thinks that the disease can usually be explained by the manner of living, feeding or drinking, and intermarriage may also be an element. In the majority of cases where he has been able to get a frank statement from the mother, he has learned that alcoholic intoxication existed in one or both parents at the time of sexual intercourse before conception. He classifies hare-lip and cleft palate into six types: The median, ordinary hare-lip, facial cleft, buccal cleft, mandibular cleft, and lastly the cleft palate proper. Only operative measures are available for relief, and in this regard he thinks the operation is so severe that it is wise to select a time when there is sufficient vital resistance. When the intermaxilla is projected forward he prefers to wait until the central incisors are cut, as they afford a secure anchorage for the stitches which are to unite the intermaxilla with the lateral portions of the maxilla, but the operation should not be deferred, except for special causes, later than two years of age. The various methods of performing the operation are described and the writer gives his own methods. He advises the palate operation as the first step, contrary to what is usually recommended, and the lip operation later. As regards hare-lip operation the simple notch is remedied by the inverted V incision above the vermilion border. The inner V is pulled down and the lateral angles brought together by stitches. The now lower portion must be pendent to allow for cicatricial contraction, or the result will be a small notch. Where the labial fissures extend into the nostril, the problem is to build a floor for the anterior nostril. The cuts are so made as to join the fibers of the orbicularis oris muscle firmly, and by the writer's modification, without angles, the incisions will fall in the line of the infranasal columns,, which are in fetal life the lines of union. Cicatrices here will look like normal facial lines, and in later life can not be defined as surgical scars. Hare-lip pins should be relegated to the past. Where the writer has to deal with a projected intermaxilla, and in all hare-lip operations, an aluminum splint of his own device is used for the dressing. For a binder he uses the new zinc oxid adhesive plaster. In all these operations the results depend largely upon good eye-measurements, clean, accurate incisions, carefully fitted flaps and closely fitting sutures; the surgeon should be ambidextrous. A few days after operation the patient should be taken out into the open air. Liquid food should be administered. The hands should be secured to keep them from meddling with the wound. Afterwards special attention should be given to speech education.

28. **Pneumonia.**—This article is an elaborate study of 120 cases of acute lobar or croupous pneumonia, with postmortem examinations. While many of the details of the paper can not be given here, a few prominent facts may be noted. The disease seems to be most prevalent in the male sex and occurs with greatest frequency in early adult life between the ages of 36 and 40, and in middle life between 51 and 55. In females the age incidence was a little earlier, but the number of cases for estimation was smaller. While the studies show that acute pneumonia is not exactly an occupation disease, it is certainly more prone to attack those whose work exposes them to the vicissitudes of the weather. Of the male cases 19 were outdoor laborers, a larger number than of any other class. Season is an important factor; the greater number of cases occur during the months of January, March, and December, and next, May and June; while it occurs at all periods of the year, it is certainly most common in the colder months.

The right lung was affected in the majority of cases; both lungs in 16 out of the 120. Death occurred in most cases during the stage of gray hepatization; the largest number occurred on the seventh day, and a few days following the seventh were also more fatal than the others. Other lesions in the lungs occurred in quite a number of cases, acute pleurisy being the most common. The postmortem showed that in no less than 43 cases the condition of the heart at the postmortem could be described as normal. The most frequent abnormality was dilatation of the right heart. Aortic valve and mitral valve disease occurred 16 times, general hepatization and dilatation 15 times, and pericarditis 13 times in the series. Other organs were affected in different proportions. The spleen was swollen and soft in nearly 50 per cent. The kidneys, which were examined in 62 cases, were found healthy in 16, while in 24 there was cloudy swelling, and in 21 nephritis in one form or another. The brain was examined only 12 times, in 5 of which it was found normal. In 2 cases there was cerebral softening, 1 fracture of the skull, and in 4 cases acute meningitis, which is known to be a common complication of acute lobar pneumonia. The distinction between acute primary and acute secondary pneumonia is made. By the former we mean a disease which begins acutely in ordinary health and runs the usual course. The secondary includes cases where it is the direct effect of some old-standing lesion, the result of septic absorption or insufflation. There were only 18 cases in all, out of the 120, that could be affirmed were truly examples of acute septic lobar pneumonia. As regards the 102 cases of primary disease, he thinks the analysis points to its being a general febrile disease with local lesions, but perhaps invariably in the lung.

29. **Fats.**—Reid sums up his article by stating first that in urinary analysis oleic acid is useful and speedy in dissolving various principles. 2. In analyzing organs—they may be partly analyzed by acidulating and extracting with supernatant oleic acid or the fat should be skimmed off and treated with benzene so as to make a complete analysis. 3. Fat may be used to eliminate poisons from the body. 4. The elective affinity of drugs may be partly due to their fat affinity. 5. The whole subject of fat in its relation to the economy is worthy of careful study.

30. **Home Treatment of Tuberculosis.**—The fundamental needs of patients suffering from tuberculosis are fresh air, good food and rest, and Hance points out how these may be obtained at the patient's home. A south and west room with windows on two sides and an open fire place for winter; in summer an east room with windows on the south will meet the indications. For the summer, tent life, day and night, is the ideal one. The physician should instruct and order the temperature of the sleeping room, especially at night, and how much time the patient should be out of doors. Food should be forced on the patient if necessary. If the patient is capable of eating three good meals a day, give some easily digested food between each two meals and at bedtime. Rest should be absolute in febrile cases, and those at the commencement of treatment for a period of one to four weeks. Exercise should be under the control of the physician. The skin should be looked after. The best plan is to dress warmly enough for indoors and to have very heavy and warm outside wraps. Sweating should be avoided when the patient is quiet. Bathing is important, and a proper hydriatic course, gradually accustoming the patient to cold applications, is advisable. A good cold rub before bedtime is often excellent. He has had patients under treatment along these lines with remarkably good results. He suggests the question whether the idea that climatic changes of the patient are advisable in the treatment of tuberculosis has not retarded progress in the treatment of the disease. His experience seems to point to the fact that under good management, home treatment may be equally successful with that in climate resorts.

31. **Lactic Acid.**—For testing lactic acid in gastric juice Knapp recommends the following modifications of Straus' method: To make this test a very weak solution of ferric chlorid and ether is needed. The strength of the iron solution is 1 to 2000, freshly prepared. The test is performed as follows: One cubic centimeter of the filtered gastric juice is put into a cylindrical separatory funnel and to it is added ether up to five centimeters. The gastric juice, with the ether, is then well shaken, by which procedure the lactic acid, if present, is extracted by the ether. This is allowed to remain quiet for a little while to permit of the separation of the two liquids. About two centimeters of the iron solution are put into a test tube of about half an inch in diameter, the iron solution appearing then practically colorless. The test tube is now held inclined and the ether extract is allowed slowly to run from the separatory funnel on the wall of the test tube, which is now turned to a vertical position. At the line of contact of the two liquids appears the canary-yellow ring, which is in very marked contrast with both the subnatant and supernatant fluids. If this canary-yellow ring is not so well distinguished immediately, then the test tube may be looked at again after a few minutes. To see this yellow ring better a white paper is held behind the test tube, our back being turned toward the source of light.

34. **Appendicitis.**—The point made by Carpenter is that appendicitis is a surgical disease and should be treated as such. He also insists on the importance of the general practitioner recognizing the disease in time and calling in proper surgical aid.

39. **Traumatic Neurosis.**—The main point of Moyer's article is that while there are actual functional disturbances due to traumatism, he does not recognize any special form as the result of such cause. There is no difference between neurasthenia caused by traumatism and that due to autointoxication. The special points of diagnosis between hysteria and hypochondria are mentioned and the over-importance attributed to spinal pain.

40. **Home Treatment of Tuberculosis.**—The hygiene of the patient's daily life is of first importance in the management of consumption, building up of tissue-resistance by superalimentation, open-air life governed by the patient's temperature, hydrotherapy and general care as to metabolism and regulations of daily life. While these are best obtained at a sanatorium they can also be had at home. Babcock advises his patients to take nourishment five to seven times a day and insists on the value of raw eggs and milk and meat diet. We must not listen to patient's assertions that they can not eat so much. He speaks of a young man who had taken fifteen raw eggs and three quarts of milk daily, gained twenty-eight pounds and lost all symptoms of incipient tuberculosis between November and February. Hydrotherapy is also insisted on and the methods described.

50. **School Ventilation.**—Hopkins criticizes the fan method of ventilation in Buffalo schools, considering it a clumsy heating system, inadequate and wasteful. It is a failure in inlet work and a more pronounced failure at outlet work and a determined failure as an air supply, lacking in uniformity, quantity and diffusion. The ideal school ventilation and air supply is a scientific problem of absorbing interest, in view of the fact that delicate and susceptible children and their future are influenced in this way. He makes a comparison between the schools of Buffalo ventilated by the fan system and certain schools of Evanston, Ill., ventilated by the Dickson system, which appears to be more than twice as efficient, though he still thinks it may possibly be open to criticism.

51. **Prostatic Hypertrophy.**—According to Clinton, prostatic hypertrophy is only to be treated surgically; but where catheterization is easy, the amount of residual urine small and no cystitis exists, and absorption is moderate, operation should not be thought of. When it is needed prostatectomy is the ideal method. He prefers the Alexander method of enucleation, with suprapubic incision of the bladder and perineal incision.

52. **Medicine from a Business Standpoint.**—Harrington's address lays down a few general rules for the beginning prac-

titioner. The hard and fast fee tables should not be followed; charges should be made according to the means of the patient. He should take just as good care of those who can pay little as of those who can pay much. He should not allow his office to become a lounging place, nor should he become too familiar with druggists. He should recommend cases to specialists whenever necessary and consent to consultation whenever desired. He should make no contracts with lodges or fraternal associations. He should be honest with patients and cheerful in the sickroom without levity. He should always speak well of fellow practitioners, and it is just as well not to criticise irregulars. He should dress properly, should not smoke during working hours, should do some general reading, be considerate to other beginners, and bear in mind there is no limit to human stupidity. The doctor is expected to elevate and educate the masses to the proper understanding of rules and regulations of health and hygiene, and to teach, both by precept and example, temperance, honesty, charity and mortality.

59.—See abstract in THE JOURNAL, xxxvi, p. 1725.

60.—Ibid.

61.—Ibid.

62.—Ibid.

63.—Ibid.

70. **Bacteriology of Lobar Pneumonia.**—The technique employed in a series of 71 cases and autopsies of pneumonia is described by Blumer. The cultures were taken from the surface of the lung by burning it with a red-hot knife, a puncture being also made through the burned area and cultures being taken from the puncture. Cultures were made on agar and on blood serum slants, preferably the latter, and the organisms isolated were studied on different media. The tubes made at autopsy were usually plated subsequently and, if there was any doubt, animal inoculations were resorted to. Cover slides were made in some cases, but unfortunately not in all. The diagnosis of lobar pneumonia was in every case confirmed by the microscope. Fifty-three cases were of adults, 23 of them being single infections. The bacterial incidence was as follows: streptococcus, 9; colon, 8; staphylococcus aureus, 7; proteus vulgaris, 3; pyocyaneus and paracolon, each 2; pneumococcus and staphylococcus albus each, 1. In 20 cases of mixed infection the incidence was as follows: colon and aureus, 4; colon and streptococcus, 3; aureus and streptococcus, 3; colon and pneumococcus, 2; colon and citreus, 2; typhoid and streptococcus, 2; colon and pyocyaneus, pneumococcus and pyocyaneus, colon and albus, lactis aerogenes and streptococcus, each, 1. Eighteen cases were in children; 12 were single infections, 5 were streptococcus, 2 aureus, 2 colon, 1 pyocyaneus, 1 an unidentified bacillus and 1 sterile. Of the 6 mixed infections, 3 were due to aureus and streptococcus, 2 to colon and streptococcus, and 1 to aureus albus and streptococcus. It will be seen here that the pneumococcus is rarely prominent in these cases. This rarity is explainable on several grounds. It occasionally fails to grow on media even at incubation temperature and might be missed without cover slip control. It is easily outgrown by other organisms, especially the colon bacillus, which was present in quite a large percentage of the cases. The rarity of Friedlaender's bacillus is not so explainable, and Blumer suggests that there may be a possibility that organisms which are common in one geographic locality are rare in another. The frequency of the colon bacillus, he thinks, is largely due to agonal or postmortem invasions, and he has studied the incidence of the bacilli in other conditions, bearing in mind the fact that it is urged that while normal lungs may be sterile, they frequently contain pathogenic bacteria. He studied the lungs in the acute and chronic passive congestions, in edema, and in combination of these conditions. Of 20 lungs acutely congested, 6 were sterile, and the other 14 contained varieties of bacteria: colon, aureus, albus and Friedlander's. The streptococcus alone was found twice. In all but 6 cases there was a general infection other than the pulmonary one. Of 6 cases of chronic passive congestion all were sterile. In 4 cases of edema all contained bacteria, 1 pneumococcus, 2 proteus vulgaris, 1 each aureus and colon. Seventeen lungs which were edematous and congested were examined and only 2 were sterile. Four normal lungs were examined, all containing bacteria; 1 showed the colon, 2 colon and albus, and 1 streptococcus. In all the cases where the colon was found there was a general invasion. In 1 albus case there was a general albus infection. Results showed that both in the acutely inflamed and congested edematous lungs in patients dying of the disease, the bacilli in the lungs are often present in the general circulation also, the germs being carried in the circulation. The cases which he has examined, including numbers of cases of broncho and lobar pneumonia, seem to show that in merely congested and edematous lungs, as with broncho-pneumonia, a general infection is frequently present. As in many of these cases no bacterial lesion can be found aside from the pulmonary one, it seems likely that the lungs are much more frequently the portal of entry in general infection than is usually supposed, and this often without marked pulmonary lesions.

71. **Tuberculinum Purificatum.**—Hale reports a case of nasal tuberculosis treated with Von Ruck's tuberculinum purificatum by injection, beginning with 20 minims of the solution containing about one-fifth of tuberculin and rapidly increasing the amount, soon giving it almost pure. In spite of excessive ulceration and bone necrosis the result was excellent. There was complete absence of objectionable symptoms in spite of the rapid increase of dosage.

80.—This article has appeared elsewhere. See THE JOURNAL, xxxvi, title 95, p. 1587.

81. **Tonsillitis.**—Gray holds that follicular tonsillitis is due to specific bacteria and that in time its infectious nature will be firmly established. We make a mistake when we allow our patients to be associated for any length of time with other members of the family. While not usually a fatal disease, he knows of no febrile disorder that renders its victims more miserable for the time being than tonsillitis.

84. **Operation upon the Inguinal Canal.**—Michaux calls attention to a method he has used in performing the Alexander operation, that is, separating the fibers of the aponeurosis of the external oblique muscle, and drawing them widely apart with retractors along the line of incision. In closing the incision he has also included the fibers of the aponeurosis of the external oblique along the margin of the opening made by the separation in stitches in order to secure firm union. This method was reported some time since, but has been redevised by a gentleman in Canada, and Michaux claims priority.

94. **High Temperatures in Scarlatina.**—DeVoe calls attention to the connection of high temperatures in scarlet fever and measles with gastro-intestinal disturbance. The treatment he specially suggests is attention to the condition of the digestive tract from the mouth down. He would employ enemas or frequent flushing of the bowel as a part of the treatment, not, of course, interfering with intestinal antiseptics or the use of laxatives.

95. **Suppression of Urine.**—Fussell calls attention to suppression of the urine in a case observed by him, in which the child died of tubercular meningitis. The symptom is rare in this disorder, and the books which he has consulted make no mention of it. He thinks the symptom was of reflex origin.

104. **Tuberculosis of Infants.**—The importance of direct heredity is considered slight by Knopf, and he thinks children are rarely born tuberculous. According to Küss the maximum death-rate of tuberculosis of childhood is at between two and four years. We have no statistics as regards the mode of infection; it would be unscientific to attribute it generally to the ingestion of milk, and intestinal tuberculosis may be secondary as children do not expectorate. A careless consumptive in the family is a special danger to children, and he given instances which support this view. Inoculation is rare unless it be from ritual circumcision, but when the child begins to get around over the floor it is exposed to

special dangers, as it will touch everything on or near the floor and then put its fingers into the mouth, and otherwise infect itself. To counteract these dangers he would have leaflets issued by the board of health and distributed to give to the future mother, nurse, and members of the family, containing everything in regard to prophylaxis, general cleanliness, ventilation, nutrition, etc. Nursing by a tuberculous mother is, of course, prohibited. In fact he thinks that if the child should be removed from the parents' home to board elsewhere, one should be sure that there is no consumption in the new home. Wherever possible cow's milk should be replaced by goat's milk. Kissing should be prohibited, and caressing and kissing of domestic pets. The floors should be kept clean and not carpeted. Visits to menageries should be with due precautions; school hygiene should be improved and the fundamental principles of hygiene, especially as regards tuberculosis and its prevention, should be part of the teaching in every school. Kissing should be discouraged in girls' schools as unhygienic. The proper bringing-up of children will have a tendency to lessen the risks, and he considers air baths and sun baths of the greatest importance. Hydrotherapy for the development of the vasomotor system to more vigorous action should be instituted at an early age. The employment of children under 14 years of age in industries is especially condemnable and he suggests as a philanthropic enterprise to furnish a good lunch to the underfed school children of our poorer districts. The recent exclusion of tuberculous children from schools in the State of Colorado is mentioned; there should be special schools for such children; without this, it could not be commended.

105. **Registration of Tuberculosis.**—Flick pleads for the registration of tuberculosis; that it is necessary and a potent factor in the scheme for its prevention. He sums up: "Tuberculosis is a contagious disease; it is a preventable disease; the center from which contagion spreads is the host; this center is limited and circumscribed; prevention of the disease is not only practicable, but easy; the keynote to prevention is control of the host; the whereabouts of the host can only be known through registration; opposition to registration is based upon false notions, fancy and sentiment; for a comprehensive scheme of prevention, governmental interference is necessary; under existing circumstances governmental interference can only take place through boards of health."

106. **Distribution of Tuberculosis in the City of Baltimore.**—Jones analyzes the death reports from tuberculosis in Baltimore and calls attention to the occupation, especially the number of cases of clerks, servants, housewives, school teachers and school children, and also to the large number of deaths which occurred in those parts of the city where narrow streets and alleys exist and where the houses are overcrowded. The milk supply of Baltimore is being investigated to show how far it is responsible for the distribution of tuberculosis.

113. **Antitoxin.**—Shuttleworth gives the results of a series of experiments with antitoxin in the Isolation Hospital at Toronto, which disagree with the average statistics on this subject. He finds an unfavorable showing for antitoxin in cases treated, though his statistics are possibly subject to some criticism. The average dose of antitoxin in 100 cases was 1122 units, which is not up to the amount now advised.

120. **Tuberculosis of the Upper Air-Passages.**—Rosenberg's article reviews the various tuberculous lesions that may exist in the upper air-passages and their methods of transmission, such as tuberculosis of the nasal mucosa, in the form of granulations, infiltrations, ulcerations or tumors; that of the nasopharynx, which is rare and occurs also in the form of ulceration; and tumor and tuberculosis of the pharyngeal tonsil. Tuberculosis of the pharynx is also comparatively rare, occurring mostly in the male sex and generally in youth. It occurs relatively often among young country people and he suggests the use of milk from infected cattle; mouth-breathing may also be a cause. Lupus in this situation occurs more often in the female and is a consequence of lupus of the skin and of the nasal mucosa and its appearance is decidedly different from that of tuberculosis. The mucous membrane is of a pale or more often of a bright red color, somewhat swollen, drier, and appears as if filled with granulations. The nodules are round, smooth and pale red and the occurrence of interstitial atrophy with scar formation makes the picture more characteristic. Tuberculosis of the larynx is most common and is treated at considerable length. It may appear in the form of infiltrations, ulcerations, perichondritis or tumor. The prognosis depends upon the state of the lungs, the general condition of the patient, and the extent and seat of the disease in the larynx. Rosenberg thinks that there has been a wrong idea as to the importance of climate for these cases. Too high an altitude is not suitable. The best place for such cases is in a sanatorium in a favorable climate where a resident physician is conversant with all the methods of local treatment of such cases.

121. **Prevention of Tuberculosis.**—The battle against the spread of tuberculosis, Pottenger thinks, must be fought by the general practitioner. The time is not far distant when a physician who passes over a case of incipient consumption will be held culpable. There is no reason why, if a physician is on the alert, that he can not discover it in many cases in the earliest stages. He is also an advocate of the tuberculin test, which he thinks if used in time would reveal many cases and enable them to be treated with success.

122. **Tuberculosis from Toxemic States.**—The conclusions of Crothers' paper are that tuberculosis in this climate follows autointoxication and poisoned states of the body. After it is once established, numerous and complex toxemias follow which intensify and increase the disease. Toxemias following overwork, bad nutrition, etc., are very common, and can be prevented by a larger knowledge with common hygiene. Alcohol in all forms is a very potent cause of toxemia. Inebriety is very closely allied as a disease to tuberculosis; it not only precedes the growth but increases it by intensifying the degeneration and by lessening vigor. Both these diseases depend upon toxemias formed in the body and poisons introduced from without. Both are associated with defective nutrition and elimination and faulty metabolism. In the treatment of tuberculosis the most important danger to be avoided is that of poisons generated within the body, and the elimination of these toxins and avoidance of all that cause them is essential. Reinfection from the tuberculous germ in the air, in the clothing and from other sources can be largely prevented by isolation and correction of the source. The restoration of vigor and the lost resisting power is best obtained by a study of nutrition and the utilization of foods that can be digested without damage from the waste of overfeeding. The scientific treatment of tuberculosis and its effectual stamping out and prevention must depend largely upon studies of nutrition and surroundings, and the breaking up of sources of poisons which perpetuate the disease.

123. This article has appeared elsewhere. See also paragraph 71.

129. **Puerperal Sepsis.**—The terms puerperal sepsis and puerperal infection are criticised by Porter, who considers that such a diagnosis is inadequate, the terms here defined being applied to cases differing widely in pathology and requiring radically different treatment. This looseness and inaccuracy of nomenclature has led and will continue to lead to improper and harmful methods in the management of these cases. While practical accuracy in the diagnosis is easy in these conditions, it is also essential to correct treatment.

133. **Insanity.**—Punton's article is a plea for the treatment of cases of insanity in small private hospitals and outside of public institutions. He claims that the associations are not the best in these large institutions for the mild and acute forms. What is best suited for these are sane surroundings with cheerful companions, homelike comforts, and peaceful quiet, which only a small hospital or sanatorium can furnish. The association with a large number of chronic cases he also thinks is damaging.

FOREIGN.

British Medical Journal, August 3.

Address in Medicine at Annual Meeting of the British Medical Association. JAMES F. GOODHART.—This address reviews the questions of the difficulties of medicine and the inscrutable problems which it involves. He finds while the average duration of life is longer, medicine is not less in demand, or ailing people less frequently in evidence; that the public has the little knowledge which is a dangerous thing and it makes difficulties for the physician by demanding to know too much. Every patient has his own ideas as to his case and demands to have his disease ticketed and identified which no man can always do. He says a woman with migraine has usually gone the rounds of every coal-tar product that was ever invented before she thinks of applying to a physician. Most people know all about lithia, piperazine, etc., and have their favorite drugs. Men and women of the present day rush immediately into the not sufficiently repellant arms of surgery. Doctors also are not free from fads. We do not appreciate sufficiently the wide range of health and how commonly slight and even considerable depressions from the normal are passed without danger. One would think from the teaching of the present day that the heart is so fragile an organ that it needs to be coddled from the cradle to the grave. The stomach also is a fad. It is really a good, strong, healthy servant with possibly a prejudice or two and if treated fairly is most obliging and thorough. The people will not have it, however, that all its little ailments are not serious ones. Throats, noses and ears are being swept into the panic for operative surgery. We should dispense with giving drugs by rule of thumb. Fashionable drugs become the favorites of society, to have their boom and pass away and are dropped for later booms, such as the animal extract and antitoxin; and many of these will be dropped in time. The open-air treatment of consumption even is becoming a fad; medical antisepsis is another; routine methods used in this way, and others, such as the use of bromid in epilepsy, are dangers of the present time. The difficulties of diagnosis are also mentioned. He says when he first entered Guy's Hospital it was a common saying about one of the staff, who was one of the best physicians of that day, that he knew so much that he could seldom be prevailed upon to give a positive diagnosis. Knowledge brings doubts and limitations. He thinks the value of medical advice is not appreciated; we have made it too common. Sir Andrew Clark was wise when asked to give a gratuitous advice and he said "No," but that he would give the money for which it could be purchased. Everybody flocks to the doctor's room and hospitals asking alms in the shape of advice and having given it we are insulted by being called trade-unionists. We must not forget the importance to the well-being of medicine of the just rewards that it deserves.

Address in Surgery. WILLIAM THOMSON.—The results of the South African war in military surgery are discussed by Thomson, who calls attention to the different methods of warfare at the present time as compared with those of the past, and the slight experience we had up to the Boer war with modern weapons. War is now a war of small arms and the vast majority of the wounds received in South Africa were caused by a bullet from modern military rifles. The notion that the elongated bullet enters at right angles is subject to many exceptions. Many things may happen after it leaves the gun. It is often deflected and makes its impact at all sorts of angles, the ricocheted bullet often closely resembling a bursting charge; he mentions a case illustrating this. In wounds of the soft parts the majority were but slight and recovery quick. The bullet undoubtedly became disinfected in its passage through the barrel of the gun, and the wound resembled that of a piece of small, clean, hard metal. The second cause for good results was the early application of the first dressing in the field. The third cause was the climate, which was specially favorable to antisepsis; there would have been much more suppuration in a moister climate. Wounds of the bones were more severe and fractures are frequent. In the cancellous structure direct perforation was more common. He can not give exact figures from the campaign in South Africa, but he thinks in no war was there so small a number of amputations, the number of limbs saved so many, or the mortality from such operations so small. Wounds of the joints do more satisfactorily than over before. Excisions were rare and amputations were only performed on the field when the vital parts were involved, or there was terrible destruction by shell, which was rare. As regards abdominal wounds, experience has taught that in the majority of cases operation is dangerous and this agrees with American experience. It is impossible to operate immediately on the spot and the mischief can be done before the patient can be carried to a central hospital. Many cases, however, of undoubted injury to the intestine recover; considering the difficulty of diagnosis in many instances at the outset, the fact that intestines may be found unwounded and if wounded may be occluded by natural processes if not interfered with, it seems to Thomson that, as we stand at present, the man whose abdomen is perforated by a small-bore bullet stands a better chance of life without operation than with it, bearing in mind the circumstances under which laparotomy must be performed. The number of lodged bullets was naturally lower than was formerly the case with the older weapons, and probing and searching for them is not in most cases justifiable. The only thing is to occlude the wound and secure it from contamination. In conclusion he speaks of the progress made by military surgery and the greater safety in war under present conditions. War is less terrible than it used to be.

The Lancet, August 3.

What Administrative Measures are Necessary for Preventing the Sale to the Public of Tuberculous Meat? SHIRLEY F. MURPHY.—The methods for prevention of the sale to the public of diseased meat are reviewed by the author, who finds the best resource in the establishment of public slaughtering houses and the doing away of private ones. He reviews the objections to this measure. He says the time has come when we should follow the excellent example that has been set by other countries and require all the animals that are killed in urban districts for public food to be slaughtered in public slaughter-houses, and be inspected before, at the time of, and after slaughtering; that the meat should be stamped and that the public should be taught to look for this stamp as the stamp of health rather than to rely upon the pathologic knowledge of the butcher or housewife. Further, all meats that have been killed outside a district, other than that which may have been killed in some public slaughter-house and duly inspected and stamped, should be taken to meat inspection stations for examination. There will no doubt be greater difficulty in the rural districts and small communities, but he thinks even here much can be done.

The Relation of Alcoholism to Tuberculosis. T. N. KELYNACK.—There are three views in regard to the relation of alcoholism to tuberculosis, according to Kelynack. 1. The view that alcoholism is antagonistic to disease, which was held by a number of authorities in times past, but for which the evidence is weak, and the abolition of alcohol in many modern sanatoriums seems to indicate that experience is against it. 2. Many people hold that alcoholism bears no special relationship to tuberculosis, except as it lowers general nutrition and places individuals under conditions practically favorable to the disorder. There is no doubt that the consequences of alcoholism, such insanitary environment, insufficiency of food, depressing emotions and occupations inimical to health may have their damaging influences. 3. The view that alcoholism definitely predisposes to tuberculosis, which has of late years received much support, and he quotes from Dr. H. Mackenzie, Professor Thomas Oliver, Dr. Rolleston and others, who have pointed out an apparent direct connection between the two conditions. Alcoholism, as has been pointed out, predisposes the organism to germ infection and also by its influence on the nervous structures is liable to weaken the organs. The author has analyzed a number of fatal cases of peripheral neuritis occurring in chronic alcoholism; 8 cases were subject to pathologic examination, and primary tuberculosis was met

in 7 of the 8. In 2 other cases of alcoholic multiple neuritis, 1 was decidedly tuberculous and the other edematous with patches of broncho-pneumonia. Thus, out of 10 fatal cases of alcoholic neuritis, 9 females and 1 male, 8 or 80 per cent. were consumptive, He also finds that tuberculosis is of frequent occurrence in subjects of alcoholic cirrhosis. In 121 cases, omitting all the doubtful and complicated ones, 28 showed tuberculosis, and active phthisis was present in 14. This made 25 per cent. with alcoholism and tuberculosis combined, and 10 per cent. dying directly from tuberculosis.

Legislation Suggested for Controlling and Eradicating Tuberculosis in Animals. DUNCAN MCEACHRAN.—The author gives the record of Canada as regards the diagnosis and prevention of tuberculosis in animals and reviews the laws in the various parts of the United States. He suggests the following legislation: "1. Tuberculosis should be included in the list of contagious diseases. Tuberculous animals should consequently come under the provisions of the Animal Contagious Disease Act; but the local authorities should have power to allow the sale and movement of such parts of the carcasses as are known not to carry contagion, such as hides, hoofs, horns, and hair, thus preventing unnecessary loss. 2. All foreign animals admitted for breeding or dairy purposes should be tested by the tuberculin test. Tuberculous animals should be prohibited from entering. 3. Tuberculin should be controlled and none but qualified veterinarians should be allowed to use it, and all reacting animals should be reported, marked and quarantined. 4. All animals showing clinical symptoms of tuberculosis, especially diseases of the udder, lungs, uterus or bowels, should be killed at once, and all scrub and grade animals reacting should be killed within six months. Pure-bred cattle may be bred from under Professor Bang's system in quarantine for life. 5. All testing, other than imported animals, should be by voluntary application for a test of the entire herd, and the expense should be borne by the state. A reaction of 2 to be understood to indicate tuberculosis, 1.5 as suspicious. Suspicious animals to be quarantined and retested in three months, unless clinical symptoms develop, when they should be at once condemned. The government to have a right to order a re-test when considered necessary. 6. Disinfection of premises should be ordered by special regulations the carrying out of which should be superintended by government officials."

Tuberculosis Among Australian Stock. G. PENTLAND.—According to Pentland, tuberculosis is steadily decreasing in Australian animals since 1885, according to the statistics of the city abattoirs.

Mortality Among Rats at the Capetown Docks Which Preceded the Present Epidemic of Plague. ALEXANDER EDINGTON.—After investigating the disease amongst rats in the docks of Capetown, Edington found evidence of a microbe, similar in many respects to that occurring in bubonic plague, but varying in others, especially in the lack of bipolar stain. He has had numerous opportunities of observing rats affected by bubonic plague at Port Elizabeth. This was not of the true bubonic type, but undoubtedly a variety of the microbe of hemorrhagic septicemia.

Archives de Med. des Enfants (Paris), iii, 10.

The Tuberculin Test in Infants. METTETA.—The results of the tuberculin test on 74 infants between two and twenty months old, are tabulated in three groups. The first contains the record of 18 with autopsies. In 12, the test had been positive, and tubercular lesions were found in each. In 6, the test had been negative, and no tubercular lesions were discovered. The second group contains 32 observations. The test resulted negatively in all and no clinical evidence of tuberculosis could be discovered in any instance. The third group contains 24 cases without autopsy. All in this series reacted to the tuberculin, and tuberculosis was clinically evident in a certain number, but in the rest, no symptoms of tuberculosis could be detected, merely whooping cough with pneumonia, rachitis, gastro-enteritis or syphilids—the affection for which they were under treatment. This last series indicates that tuberculosis existed in a latent form, or else, that certain other affections may exceptionally cause a reaction to the tuberculin test.

Bulletin de l'Academie de Medecine (Paris), July 9.

Cacodylic Medication. A. GAUTIER.—THE JOURNAL mentioned at the time Gautier's announcement that he had discovered arsenic in normal tissues as a physiologic element in the thyroid gland, skin, etc. He drew from this discovery the therapeutic conclusion that arsenic was indicated in certain morbid conditions, requiring small amounts of arsenic continuously for months and years. He found the cacodylic preparations best adapted for the purpose, and in this long communication describes his extensive experience with them. They have proved remarkably effective in wasting diseases, in pulmonary tuberculosis in the first and second stages, tuberculosis of the bones and viscera, diabetes, neurasthenia with general depression and diminished vitality, malarial cachexia, severe anemia, asthma, chorea, protracted convalescence, wounds with loss of surface, tractures, the consequences of repeated pregnancies, uncontrollable vomiting, myxedema, rebellious cutaneous affections, etc. They can be administered for years without disturbing the nutrition or inducing congestion in the liver, kidneys, intestines, nervous centers or skin. Their action is due to their influence on the reproduction of normal cells and of red corpuscles, rejuvenating the tissues and conferring on the entire organism an extraordinary resistance to the action of morbid causes. He describes a number of instances of each of the above affections, showing the remarkable effects attained by the cacodylates. The results were variable or doubtful in Parkinson's disease, in the degeneration accompanying mental disturbances and in cancer. The only safe way to give the cacodylates—sodium cacodylate is usually preferred—is by hypodermic injection, in doses of 5 to 20 cg. a day or even more, each series of seven to ten injections being followed by suspension for the same number of days. The individual dose must be determined for each patient, commencing with 25 mg., then 50 mg. for a week, recommencing with 50 to 100 mg. If improvement is marked, this dose is sufficient. If not, he increases it until signs of intolerance appear. The quantity needed varies in a wide range. Signs of intolerance are, first, congestive symptoms in the face; they are insignificant unless they persist and increase, or are accompanied by a condition of excitement preventing sleep, following the immoderate use of the drug. It should not be administered for four or five days before the menses, as it hastens them and increases the flow. One of the principal signs that the proper dose has been exceeded, is a buzzing or whistling sound in the ears. If the same dose is continued in spite of this warning, deafness or slight vertigo may follow. When the medication is continued without the necessary pauses, disturbances may be noted similar to those of excessive thyroid treatment. Fever, diarrhea and vomiting do not contra-indicate this "latent arsenic treatment," but hepatic insufficiency is an absolute contra-indication, and cancer, congestion and hypertrophy of the liver, icterus and cirrhosis demand extreme reserve in this cacodylic medication. Iodin is completely absent from the bodies of microbes and contributes powerfully toward the defense of the organism against infectious agents. It is also normally associated with arsenic in the thyroid gland. Consequently he considers iodin and food rich in easily assimilated mineral elements or a medicinal compound of them, effective adjuvants of cacodylic medication. His tuberculous patients take an hour before meals a dessertspoonful of a mixture of 5 gm. of sea-salt and 1 gm. each of potassium iodid and bromid, in water to make 100 c.c. During each meal they take 15 c.c. of a mixture of sea-salt 15 gm.; precipitated calcium phosphate 30 gm.; ammoniaco-magnesium phosphate 10 gm.; hydrochloric acid 30 gm.; crystallized citric acid 12 gm.; ammonium fluorid .15 gm.; sugar 100 gm. and water to make 300 c.c. He recommends the yolk of egg, taken raw and unbroken, with a little lemon juice or vinegar, as the best form in which these mineral elements in combination with organic iron, can be taken. He also recommends raw meat—mutton, not beef—scraped and rolled into pellets the size of a nut, swallowed at the close of the meal, without chewing. The juice can be taken instead of

the meat. Creosote and guaiacol stimulate the organism at first and then depress it, inhibiting its assimilating power, exactly the reverse of the action of the cacodylates, which regulate the oxidations and arrest abnormal waste, stimulating nutrition and assimilation and regulating all the vital processes. [See Editorial in THE JOURNAL last week.—ED.]

Hematogenic Pyramidal Nephritis. BABES.—Three additional cases are reported, distinguished by the hemorrhagic character of the acute infection and the renal lesions discovered at the autopsy. The pyramids were tumefied, whitish or yellowish, disseminated with hemorrhagic foci. The cortical substance was a reddish gray. The papillary and pyramidal nephritis resembled the alterations noted in animals after intoxication with vinylamin.

Treatment of Aneurysms by Subcutaneous Injection of Gelatin. LANCEREAUX.—Three new cases are described showing undoubted benefit and practically the cure, of two aneurysms of the arch of the aorta and one of the subclavian artery, after injection of 5 gm. of gelatin dissolved in 200 to 250 c.c. of a 7 per 1000 solution of sodium chlorid, repeated as often as necessary, always in the buttocks. The first injection causes the coagulation of the blood to a certain extent, but in time this clot retracts, allowing renewed passage of the blood. A second injection fills up the sac with an additional clot, but this, in time, also retracts, and hence the necessity of repeating the injections until the coagulation has obliterated the aneurysm permanently. Variations from this technique are responsible for the failures reported by others, although fusiform aneurysms are not amenable to this gelatin treatment, as Lancereaux announced at his first communication.

Bulletin de la Soc. Med. des Hop. de Paris, July 18.

Stenosis of the Pylorus Without Retention of Food. M. SOUPALT.—The incipient stage of pyloric stenosis causes no trouble except vague, irregular dyspepsia from time to time. In the course of a few weeks or months, pain, vomiting, acid regurgitations and eructations are noted. The pain is the most constant symptom, and is felt in the lumbar region almost as intensely as in the epigastrium. The intensity of the symptoms varies with the nervous condition of the subject. The symptoms appear or are most marked a few hours after eating. This tardy appearance of the pain and other gastric symptoms is characteristic and even pathognomonic of stenosis of the pylorus. Another characteristic is that the affection develops with intermissions, which, however, grow shorter and shorter until the symptoms are almost constant. The stomach is found empty between meals, but after the failure of medical measures, an operation becomes necessary, and in nine cases, related in detail, the lesions in and around the pylorus were discovered at the time of operation, as anticipated. The cardinal symptom—retention—had always been absent or only appeared at rare, brief intervals. Soupalt's experience has included a large number of such cases, and they indicate the necessity of operating promptly in dubious cases, especially at the slightest suspicion of carcinoma, even when there is no retention.

Bulletin de la Soc. Franc. d'Electrotherapie (Paris), June.

Cause of X-Ray Burns. OUDIN.—Kienbock, Schraeter and Oudin, from their individual research, believe that x-ray burns are not due to the electricity, but to the x-rays alone. Under interposed screens—part lead, part aluminum—the tissues were liable to become inflamed under the aluminum, while the lead-screened portions were never affected, irrespective of the intensity of the electricity employed and the closeness of the tube. This fact has recently been corroborated by Walkoff, Giesel, Becquerel and the Curies, who have been studying the mysterious rays emitted by radium, polonium and uranium. It has been found that these rays possess the same property of inducing x-ray burns as the Crookes' tubes. Some of these scientists caused serious dermatitis on themselves with these rays. The most conclusive proof of all was the fact that Becquerel—in whose honor the rays have been named—produced a severe x-ray burn on himself by carrying a bottle containing a few centigrams of radium in his vest pocket. The accidents of radiography are therefore proportional to the number and penetration of the x-rays. This article is the report of a committee. It confirms Schraeter's assertion that there are four periods in the life of a tube. During the first it is very soft, the x-rays scanty; the soft parts cast a deep black shadow on the screen. During the second period the soft parts are still visible on the screen, the shadow of the bones is very black, scarcely lighter in the middle of the phalanges. The tube is rich in x-rays, but they have a comparatively weak penetrating power. They produce the superficial lesions on the skin. In the third period, the tube is rich in very penetrating x-rays, and induces deep lesions. The shadow of the soft parts is scarcely visible on the screen and even that of the bones is very light. When the last period is reached, the tube has become extremely resistant; almost all the electricity passes around it, the bones cast scarcely any shadow. It lights up only at intervals and generates very few x-rays, but they possess intense penetrating power and do not induce any lesions. This of course refers to an average exposure. If the exposure during the first or last period was exceptionally long, it would in time induce accidents as during the other periods.

Presse Medicale (Paris), July 13.

Elimination of the Pigment in Bronzed Diabetes. RABÉ.—A case is described in which Addison's disease coincided with bronzed diabetes. The epithelium of the liver, pancreas and salivary glands and also of the capillary network of the lungs, was crowded with particles of pigment and the sputum was rusty with them. Rabé concludes, from the facts observed, that the cells of the glandular parenchyma expel the excess of pigment at both their inner, or vascular, and their outer, or canalicular, pole. This imparts two currents to the hemosiderin, one, the canalicular, follows the excretory passages of the gland; the other, the vascular, passes into the lymph and blood which sweep them into the pulmonary capillaries, whence they are expelled in the sputum. The finer granules of hemosiderin which escape this sifting process are carried by the circulation to the kidney and are eliminated in the urine.

July 17.

Iodo-Hydrargyrum Cacodylate in Syphilis. L. BROCQ.—Forty-nine syphilitics were treated with subcutaneous injections of a combination of sodium cacodylate, sodium iodid and mercury biniodid. The results show that this is an excellent combination for syphilis with marked disturbance in nutrition, emaciation, or neurasthenia, with rebellious, secondary cutaneous and mucous membrane manifestations, when there are seborrhoid complications, and during tertiary accidents when an energetic action is desired without disturbing the alimentary canal. The solution can be sterilized at 120 C. and mixes with the blood serum without a precipitate. The injections are very slightly, if at all, painful and no abscesses followed its use. Only seven of the thirty-one cases followed to date were uninfluenced by the treatment.

Progres Medical (Paris), July 13.

Arrest of Poisons by the Leucocytes. A. LOMBARD.—Guinea-pigs were injected with an almost fatal dose of strychnin or atropin. The leucocytes were increased in numbers in every case. Other animals, rabbits, cats, were injected with red corpuscles from the guinea-pigs with no effect. Others were injected with an emulsion of the liver and spleen, and showed symptoms of slight intoxication, as also still others injected with the serum. But a fourth group, injected with even a very small amount of centrifugalized leucocytes from the guinea-pigs, exhibited all the symptoms of pronounced intoxication specific for strychnin or atropin. Lombard believes that the leucocytes seize the injected poison, and then, their vitality lowered by it, hasten to the liver and deposit the toxin, drawing on this reserve from time to time for such amounts as are compatible with the survival of the animal, to eliminate them by the different emunctories.

Revue Gen. d'Ophthalmologie (Paris), June.

Pathogenesis and Abortive Treatment of Panophthalmitis. L. DOR.—If the vitreous humor of animals is squeezed

out on a piece of fine linen, the phenolphthalein test shows that it is decidedly acid in normal conditions, although it is generally assumed to be alkaline. The eye of the horse is best adapted to this research on account of its size and the fluidity of the vitreous. In examining a large number of fresh horse eyes, Dor noticed that one was much less acid than the rest, and on investigation, discovered a lesion in it. This discovery was confirmed in numerous experiences and tests, all showing subnormal acidity in an injured eye. He conceived the idea that this subnormal acidity, or rather, alkalinization of the humors of the eye, constituted a defensive process on the part of the organism. Consequently, he reasoned, therapeutic measures to assist this alkalinization might re-enforce the organism in its struggle. He administered 100 gm. sodium carbonate to horses a few hours before they were killed, and found in every case that the vitreous humor had become much less acid than usual, when the eyes were examined after death. He then experimented on rabbits, and found that a rectal injection of 2 gm. of potassium iodid in 30 gm. of water, the day before the rabbit was inoculated with a culture of staphylococcus aureus in the vitreous, prevented the appearance of any inflammatory process in the eye, if the amount of the culture injected were not much larger than that required to induce a panophthalmitis in the control animal. The iodid also attenuated to a remarkable degree the course of the panophthalmitis induced by a large amount of culture injected. When a small amount of the culture was injected, the administration of the iodid—even several hours after the inoculation—was able to arrest the resulting panophthalmitis. The iodid or any other alkali, in subconjunctival injections, produced invariably negative or unfavorable results. As infection in man seldom or never occurs from a pure culture, and as the amount of the culture introduced seemed to influence to such an extent the appearance and course of experimental panophthalmitis, he concludes that the preliminary administration by the mouth or rectum of a sufficient dose of some alkali—preferably potassium iodid—would prevent the development of inflammation after operations on the eye, or at least attenuate its course. If it failed, no harm would have been done. Those who have the courage to administer the iodid by subcutaneous injection, might possibly abort even an established panophthalmitis. Horses thus injected with a 1 per cent. solution did not seem to suffer any inconvenience from it.

Revue Internationale de Therapie Physique (Rome), ii, 3.

Phospho-Creosote Medication in Tuberculosis. S. BERNHEIM.—As the conclusion of long study of creosote in the clinic and on animals, Bernheim asserts that the polyethers of creosote are far superior to creosote itself for therapeutic purposes. Among the creosote polyethers, those containing a phosphorous element are the most effective in the treatment of tuberculosis, as the latter requires essentially the same treatment as hypoacidity. Phosphoric acid seems the best adapted for the purpose, as this acid enters so largely into the composition of the tissues. The phosphate of iron dominates in the blood corpuscles; the phosphate of potassium in the nervous system; the phosphate of magnesium in muscular tissue, and the phosphate of calcium in bones. In tuberculosis, more than in any other disease, the hypoacidity is accompanied by phosphaturia, and phosphoric acid possesses also the advantage of combating the nervous troubles which result from this exaggerated elimination of the phosphates. Creosote stimulates the activity of the cells and phagocytosis, and is thus an indirect specific for tuberculosis.

Archiv f. Kinderheilkunde (Stuttgart), xxxi, 3 to 6.

Otitis in Infants. SCHENGELIDZE.—Indications of purulent inflammation of the middle ear were found in 70.5 per cent. of the cadavers of ninety infants less than one year old. It is usually bilateral and accompanies pneumonia or catarrh of the upper air passages. The central cavity of the middle ear was never found sterile, but the virulence of the microbes seemed to be somewhat attenuated. Coughing and vomiting are evidently factors.

Three Cases of Surgery of the Lung in Children. JABLOKOW.—Three weeks after the commencement of the illness with fever, cough and pains in chest, the patient, a boy of 10, presented symptoms of a gangrenous cavity in the lung. After resection of the seventh rib and evacuation of the cavity, temporary improvement was observed. The extension of the process required a second intervention, but the cachexia progressed to a fatal termination. The two other cases were cured. One, a girl of 10, recovered after evacuation of an acute abscess in the lung consecutive to grippal pneumonia. Half a cupful of bloody pus was removed through a wide incision in the fifth interspace, and a cavity in the lung tissue of corresponding size was palpated. The fistula persisted a long time, but no tubercle bacilli nor elastic fibers were found in it. In a third case, reported by Alexejew, a boy of 8 contracted a febrile cold. Eight days later an exploratory puncture in the area of dulness revealed thick pus containing diplococci. The seventh rib was resected. Pleural adhesion had occurred, and a cavity 3 cm. deep, was found in the lung. It had perforated into the space between the diaphragm and the lung. When the cavity was being rinsed out, blood-stained fluid poured out of the mouth, inducing violent coughing. Complete recovery occurred in eight weeks.

Indications for Venesection in Children. A. BAGINSKY.—Danger of suffocation from the unduly distended right heart, and overloading of the blood with the chemical waste products of the organism, are the only indications for venesection in children. The age is no criterion, although the blood is regenerated less readily in very young children. Gregor has reported the case of a six-months' infant saved by venesection in bilateral pneumonia. If the blood flows normally and uninterruptedly, the twentieth to the fifteenth part of the total amount of blood can be withdrawn.

Centralblatt f. d. Grenzgeb. d. Med. u. Chir. (Jena), July 10 and 17.

Latest Research on Herpes Zoster. L. SPITZER.—Reviewing recent literature, it is evident that the intervertebral ganglia may show all kinds of conditions in herpes zoster, from normal to the most severe, irreparable injury, that is, transformation into sclerous connective tissue. In some cases, consequently, there must be complete restitution, and in others the resulting lesions are permanent. In 28 out of 32 cases in which an autopsy was possible, no other affection existed. It does not often recur, and Kaposi's case, with its nine recurring attacks, is unique. Epidemics of facial and nasal herpes have been observed; the dividing line between such cases and "genuine" zoster is becoming fainter and fainter. Various infections are liable to induce zoster on occasion. Epstein suggests that the vessels, dilated under the influence of the fever, cause the lesion in the ganglia by mechanical compression. Head and Campbell, in the most important work on the subject of late years, assert as the result of extensive anatomic research, that they consider herpes zoster an acute, specific disease, similar to acute anterior poliomyelitis, but affecting the posterior root ganglia instead of the anterior cornua, and the posterior ganglia cells instead of the motor cells. They consequently suggest the term acute posterior poliomyelitis for the nervous affection which is the base of herpes zoster. The essence is an acute interstitial inflammation of the ganglion with necrosis of the ganglion cells. The agent is unknown, but it seems to have an attraction for the posterior root ganglia and generally affects one ganglion alone. The ganglia connected with the intestines by sympathetic fibers are most frequently involved. The extent of anterior poliomyelitis and the fact that the posterior is restricted to one or two ganglia, is due to the fact that the anterior cornua form an anatomically continuous column. In their numerous autopsies, they never found more than one ganglion affected in herpes zoster. They are now engaged in research to determine whether there is any connection between the sympathetic nerve and the herpes eruption. Spitzer considers their theory extremely plausible.

Dermatologisches Centralblatt (Berlin), July.

Psoriasis. E. GERSTLE.—This writer is inclined to attribute psoriasis to a neuropathic origin. He has observed several cases of the coincidence of psoriasis with gout or diabetes.

He also noted that 151 out of 975 patients with psoriasis treated at Joseph's clinic, were cabinet-makers. Chrysarobin has proved most effective in his experience. The patients take a bath the day before and rub off as many of the flakes as possible, scraping afterward if necessary, so that the chrysarobin can reach the morbid tissues. It is applied twice a week, with a stiff brush, to the parts, in a 10 per cent. solution in traumaticin. In some cases a dermatitis followed its application, but this was easily cured by boricized vaselin, and it was noted that the cases in which this irritation occurred, healed most rapidly. A milder salve is used on head and face on account of the stain and danger of conjunctivitis.

Kinderarzt (Leipsic), July.

Causes of Infant Mortality in Summer. W. HAUSER.—The weeds eaten by the cows in their summer pastures are responsible for many cases of gastro-intestinal disease. Many of these weeds are poisonous and their juices pass into the milk. In support of this theory, Hauser gives the statistics of mortality in a number of districts in his experience, classifying them by the soil and the weeds that grow by preference on certain soils. His tables indicate a lower death-rate on the granite and sandstone foundation than on the jurassic. He contends that systematic eradication of weeds from pastures would banish certain gastro-intestinal affections in infants.

Therapie der Gegenwart (Berlin), July.

Uselessness of Isolation in Diphtheria. E. VON BEHRING.—The finding of diphtheria bacilli in the throat without marked clinical indications of diphtheria, has no significance, according to Behring. He asserts that about 10 per cent. of the entire population carry diphtheria bacilli in their throat without resulting infection. The bacilli have lost their virulence, or else the individuals possess a natural immunity. He considers all bacteria with the morphological characteristics of Loeffler's bacillus, true diphtheria bacilli, but he would differentiate a simple angina, rhinitis or conjunctivitis from diphtheria, even with diphtheria bacilli numerous in the organ involved, if there were no general symptoms of diphtheria. He affirms that it is useless and even nonsensical to isolate persons who have been exposed to diphtheria. It is impossible to free people from the bacilli or to keep them permanently free. Infection results from a predisposition, which is in turn due to the lack of an antitoxic serum in the blood. The antibodies which undoubtedly exist in the blood of numerous individuals, are probably produced by the vital activity of avirulent diphtheria bacilli in their throats. He consequently suggests that it might be possible to induce auto-immunization by transplanting avirulent diphtheria bacilli into the throats of other human beings. The comparative immunity of physicians to diphtheria may be due to the repeated, unconscious inoculation with small doses of the virus. Extensive, systematic preventive inoculation with antitoxin would induce a natural immunity to the disease and entail the final disappearance of diphtheria. These views are presented at length in his book just published at Berlin.

Wiener Klinische Wochenschrift, July 18.

Influence of Food on Uremia. A. STRUBELL.—Uremia induced experimentally in dogs fed on albuminoids and fat, or in starving dogs, proved fatal, on an average, in fifty-three hours. Dogs fed on carbohydrates survived eighty-nine hours, or thirty-six hours longer than the others. Strubell states that there is no essential clinical difference between experimental uremia and uremia in man. He therefore concludes that in case of threatened uremia or in any acute or chronic nephritis, the food should be restricted to carbohydrates from time to time, or at least to a vegetable diet, once or twice during the year, for instance. The diet should be the reverse of that recommended in diabetes, allowing all that is forbidden in diabetes, and forbidding what is allowed, with the exception of alcohol.

Clinica Medica Italiana (Milan), June.

The Nerves in Intoxication with Sublimate. U. ALESSI.—The autopsy of a woman who died a few days after ingestion of two grams of mercury bichlorid, showed that the nerve cells had been profoundly affected by the poison. Experimental research on animals treated with mercury bichlorid and albuminate demonstrated that the lesions were the same in all cases, and more marked in the cerebral cortex than in the cerebellum, but equally developed in the acute and in chronic intoxications. These lesions are responsible for the death of the animal. They range from simple chromatolysis to necrosis of the elements, but have no characteristic type useful in the diagnosis.

Action of Currents of High Frequency on Tubercular Toxins. E. MARGAZALLI AND V. MARAGLIANO.—Tubercular toxins exposed to the action of electric currents of high frequency lose a large proportion of their toxicity, but do not acquire any antitoxic power. Therapeutic antituberculosis serum does not lose its antitoxic power when exposed to the same currents. These assertions are the results of extensive research conducted for four years.

Gazzetta Degli Ospedali (Milan), July 7.

Technique of Subcutaneous Injections of Iron. A. PLESSI.—The contradictory experiences of various clinicians with the subcutaneous injection of preparations of iron is probably due to the choice of the point where the injection is made. The citrate of iron and ammonium is preferred at Galvagni's clinic, where the results of this method of administering iron have always been brilliantly satisfactory. A series of 359 injections are tabulated, showing that only 3 out of 54 injections in the back were free from some after-disturbance, while nothing of the kind was observed with 288 out of 305 gluteal injections.

Process of Repair in Experimental Lateral Ligature of Veins. D. TADDEI.—In the experimental research on rabbits, silk was found superior to catgut for lateral ligature of the superficial jugular vein. The substitution of connective tissue commences on the second and is complete on the sixth day, but the process of true repair does not commence until after a month, and is complete in the course of two and one-half months.

July 14.

Necessity of Antisepsis in Injecting Gelatin. E. GIORDANO.—The gelatinized serum used for hemostatic purposes, is an exceptionally fine culture-medium for pyogenic micro-organisms, as Giordano has established by a number of tests. He experimented to find the best means of rendering it unfavorable for cultures, and recommends sublimate, in the proportion of 1 to 3,000, especially for application on infected surfaces.

Harmlessness of Intramuscular Injections of Quinin. G. SETTI.—Several cases are described out of Setti's large experience, to demonstrate the absolute harmlessness of intramuscular, gluteal injections of freshly prepared quinin bichlorid, and their extreme efficacy. He considers the intramuscular route the best, if not the only method of administering quinin in ordinary cases of malarial fever. In urgent cases the endovenous route is perhaps preferable.

Giornale della R. Accademie di Med. (Turin), lxiv, 6, 1901.

The Blood in Case of Malignant Tumors. M. DONATI.—Nearly a hundred pages are devoted to this research, with 172 bibliographic references. Thirty-one cases are described in detail with the tabulated results of the examination of the blood. In cases of malignant tumors the alterations in the blood are merely those caused by any debilitating factor, and Donati was unable to establish any special type of the composition of the blood in these cases. However, the site of the tumor has a certain influence. He observed that in case of carcinoma of the stomach, for instance, the hemoglobin and the number of erythrocytes and of the total corpuscles were diminished. Polychromatophile, granulated red corpuscles appeared in the blood, with poikilocytes, macrocytes and microcytes. Normoblasts and megaloblasts were also found in these cases and a small number of erythrophile reds. Hyperleucocytosis was noted in 50 per cent.; there was no leucocytosis of digestion in 80 per cent. The neutrophile polynuclears may dimin-

ish in favor of some other variety of leucocytes and large lymphocytes may appear. Lymphosarcomata induce a high degree of hyperleucocytosis.

St. Petersburg Med. Wochenschrift, May 18.

Affections of the Conus Medullaris and Cauda Equina. I. SCHWARTZ.—One of the two cases described improved so much under potassium iodid that the syphilitic nature of the lesion seems to be established, although there were no other indications of lues. Intense, long continued pains indicate that the lesion is in the cauda. They are accompanied by relaxed motor paralysis of the type known as paraplegia dolorosa. An irregular bilateral appearance is characteristic. The motor paralysis extends very slowly. An affection of the cone is indicated by a sudden onset and the symmetrical appearance of the manifestations. The atrophy develops more rapidly. Fibrillary twitchings of the muscles speak also for the cone in general, although there are exceptions to this rule. Anesthesia without preceding pain is evidence in favor of the cone. Dissociation is often noted in the impressions perceived. Müller suggests that in inoperable cases the posterior roots of the cauda might be severed to relieve the terrible pain.

Pseudo-Myxomatous Peritonitis. F. WEBER.—The clinical picture of this affection resembles that of a rapidly-growing tumor in the abdominal cavity. The subjects are almost all in the climacteric age. Only 17 recovered out of 40 cases collected by Güunsburger—the lighter cases are probably not published. It is possible that the colloid substance, finding its way into the blood, may affect the action of the heart, as nearly all the deaths occurred from heart failure. Suppurative peritonitis is more frequent after laparotomy in these cases as the peritoneum is in a chronically inflamed state and the lymphatics are clogged with the colloid substance, preventing resorption. The prolonged compression of the intestines and stomach interferes with the nourishment and debilitates the patient. Three new cases are related, two of long standing, both fatal, and one recent case, terminating in recovery.

Cronica Medica (Lima), May 15.

Benefit of Intrasplenic Injections in Chronic Malaria. J. L. CASTRO GUTIERREZ.—The writer relates several cases of chronic malaria with hypertrophied spleen, absolutely rebellious to quinin or any medicinal treatment. He injected directly into the spleen a Pravaz syringeful of a mixture of 20 cg. of malate of iron and six drops Fowler's solution, in water. The evening of the same day an acute malarial attack occurred, with fever at 40 C. Subcutaneous injections of quinin were made repeatedly. The third day the intrasplenic injection was repeated, but was not followed by any reaction, and the patient's further recovery was rapid. This experience was repeated in every case. The malarial parasites had probably ensconced themselves in the spleen, and quinin did not reach them. The intrasplenic injection roused them up and forced them into the general circulation where the quinin administered immediately afterward soon destroyed them. The author asserts, therefore, that the technique should be first the intrasplenic injection, and then large subcutaneous doses of quinin, as soon as the acute attack appears.

Cronica Medica Mexicana (Mexico), August 1.

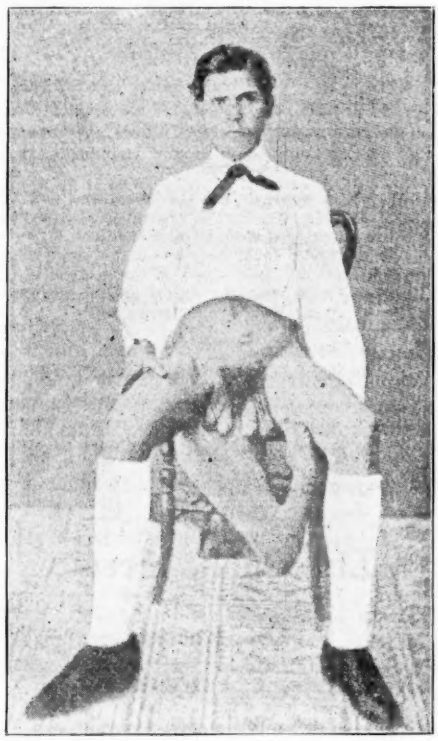
Picric Acid in Smallpox. J. F. ROMERO.—In 162 cases of smallpox, 46 recovered without noticeable scars and 101 without a single trace of pitting. All had been treated with picric acid applied as a lotion or in a salve, and pitting occurred in only 15 cases. The picric acid probably acts by destroying the pyogenic germs that may find their way into the pustules. In a number of cases the confluent pustules covered the exposed parts of the body and the legs, but under the picric acid they subsided without a trace. In many instances he noted the coincidence that other members of the family failed to contract the smallpox from patients duly treated with picric acid. Its use was suggested by accident in a community where there was no drug store and where nothing else was available. His formula for the lotion is 2 gm. of picric acid in 15 gm. of alcohol and 185 gm. of water, to apply three times a day. When the pustules are already suppurating, he substitutes a salve of 1 to 50 gm. picric acid in 100 gm. lanolin or fluid vaselin, and 6 gm. alcohol, applying it four times a day.

Gaceta Medica (Mexico), July 1.

Rapid Examination of Sputa. J. P. GAYON.—In order to facilitate and hasten the examination of thick, scanty sputa in incipient tuberculosis, Gayon adds 20 c.c. of salt solution and 1 gm. of borax to each c.c. of sputum and centrifugalizes the mixture. The fluid is then decanted and the sediment is ready to examine at once.

Semana Medica (Buenos Ayres), June 6.

Remarkable Teratologic Case.—The case was seen by Professor Figueira of Lisbon. The supplementary leg emerging from the perineum is in reality two legs grown together, and has ten toes. Hard bodies of indeterminate shape can be palpated in the abdomen, which Figueira and others assume to be the remainder of the body of the fetus included in the



abdomen of the surviving twin. There is evidently a single bladder, as the young man urinates simultaneously with both urethræ. All the organs seem to be sound.

Books Received.

INTERNATIONAL CLINICS. A Quarterly of Clinical Lectures and Especially Prepared Articles on Medicine, Neurology, Surgery, Therapeutics, Obstetrics, Pediatrics, Pathology, Dermatology, Diseases of the Eye, Ear, Nose and Throat, and Other Topics of Interest to Students and Practitioners. By Leading Members of the Medical Profession Throughout the World. Edited by Henry W. Cattell, A.M., M.D., Philadelphia, with the Collaboration of John B. Murphy, M.D., Chicago: Alexander D. Blackader, M.D., Montreal: H. C. Wood, M.D., Philadelphia; T. M. Rotch, M.D., Boston; E. Landolt, M.D., Paris; Thomas G. Morton, Philadelphia; Chas. H. Reed, M.D., Philadelphia; J. W. Ballantyne, M.D., Edinburgh, and John Harold, M.D., London. With Regular Correspondents in Montreal, London, Paris, Leipsic and Vienna. Volume II. Eleventh Series, 1901. Cloth. Pp. 304. Price, $2.00 per volume. Philadelphia: J. B. Lippincott Co. 1901.

THE DIAGNOSTICS OF INTERNAL MEDICINE. A Clinical Treatise on the Recognized Principles of Medical Diagnosis. Prepared for the Use of Students and Practitioners of Medicine. By Glentworth Reeve Butler, A.M., M.D., Chief of the Second Medical Division, Methodist Episcopal Hospital. With 5 Colored Plates and 246 Illustrations and Charts in the Text. Cloth. Pp. 1059. Price, $6.00. New York: D. Appleton & Co. 1901.

PRACTICE OF MEDICINE. By Eminent Medical Specialists and Authorities. Edited by George Alexander Gibson, M.D., D.Sc., F.R.C.P. Ed., Physician to the Royal Infirmary, Edinburgh. Vols. I and II. Cloth. Pp. 1770. Price, $8.00. Philadelphia: J. B. Lippincott Co. 1901.

SYPHILIS: ITS DIAGNOSIS AND TREATMENT. By William S. Gotthell, M.D., Professor of Dermatology and Syphilology, New York School of Clinical Medicine. Profusely Illustrated. Cloth. Pp. 216. Price, $1.00 net. Chicago: G. P. Engelhard & Co. 1901.

THE DISEASES OF THE RESPIRATORY ORGANS, ACUTE AND CHRONIC. By William F. Waugh, A.M., M.D., Professor of Practice and Clinical Medicine, Illinois Medical College. Cloth. Pp. 221. Price, $1.00 net. Chicago: G. P. Engelhard & Co. 1901.

AN INVESTIGATION OF A PATHOGENIC MICROBE Applied to the Destruction of Rats. M. J. Rosenua, Past Assistant Surgeon, Director Hygienic Laboratory, U. S. Marine-Hospital Service, Washington, D. C. Paper. Pp. 10. Washington: Government Printing Office. 1901.

PHOTOGRAPHIC ATLAS OF THE DISEASES OF THE SKIN. By George Henry Fox, A.M., M.D., Clinical Professor of Diseases of the Skin, College of Physicians and Surgeons, New York. Parts II and III. Philadelphia and London: J. B. Lippincott Co. 1901.

SEXUAL HYGIENE. Compiled from Books, Articles and Documents, Many Not Heretofore Published. By the Editorial Staff of the Alkaloidal Clinic. Cloth. Pp. 269. Price, $1.00. Chicago: The Clinical Publishing Co. 1901.

Queries and Minor Notes.

CHAPARRO ARMAGOSO.

MAGORDA, TEXAS, July 30, 1901.

To the Editor:—Will you please give me some information anent the physiologic action and therapeutic uses of chaparro armagoso? Also, I would like to know something of the chemistry of this drug.

S. A. F.

ANS.—Chaparro is Spanish for the evergreen oak, answering to the botanical Quercus ilex. The variety "chaparro armagoso," however, we are unable to find in any medical or botanical work. We think it is merely a local term, and not scientific. It is possible, however, that the first word of your term is "Chaparra," which is Southern and Western American for "bramble," as well as Spanish for a "plantation of evergreen oaks."

NAME OF SECRETARY WANTED.

MANKATO, MINN., Aug. 12, 1901.

To the Editor:—Please state in THE JOURNAL who is the Secretary of the State Board of Medical Examiners of Minnesota.

L. M. L.

ANS.—Dr. C. J. Ringnell, Minneapolis.

The Public Service.

Army Changes.

Movements of Army Medical Officers under orders from the Adjutant-General's Office, Washington, D. C., Aug. 1 to 7, 1901, inclusive:

James T. Arwine, contract-surgeon, leave of absence from Fort Liscum, Alaska, extended.

Robert Burns, major and surgeon, Vols., leave of absence extended.

William H. Corbusier, major and surgeon, U. S. A., member of a board at New York City for the examination of officers for transfer to the Corps of Engineers.

William C. Fisher, contract dental surgeon, from Washington, D. C., to Fort Sheridan, Ill., for duty at that post.

Robert J. Gibson, major and surgeon, U. S. A., member of a board at San Francisco, Cal., for the examination of officers for transfer to the Corps of Engineers.

William P. Kendall, major and surgeon, U. S. A., from Fort Slocum, N. Y., to duty at Fort Porter, N. Y.

William L. Kneedler, major and surgeon, U. S. A., sick leave from the Division of the Philippines extended.

Conrad E. Koerper, lieutenant and asst.-surgeon, U. S. A., from duty at Washington Barracks, D. C., to temporary duty at the U. S. General Hospital, at that post.

John S. Kulp, captain and asst.-surgeon, U. S. A., member of a board at New York City, N. Y., for the examination of officers for transfer to the Corps of Engineers.

William F. Lewis, captain and asst.-surgeon, U. S. A., member of an examining board at Omaha, Neb.

Arthur W. Morse, lieutenant and asst.-surgeon, U. S. A., member of a board at San Francisco, Cal., for the examination of officers for transfer to the Corps of Engineers.

John A. Murtagh, lieutenant and asst.-surgeon, U. S. A., member of an examining board at San Francisco, Cal., vice Lieutenant C. C. Collins, asst.-surgeon, U. S. A., relieved.

Michael A. Rebert, captain and asst.-surgeon, Vols., recently appointed, and now at York, Pa., to proceed to San Francisco, Cal., en route for assignment in the Division of the Philippines.

Edward R. Schreiner, lieutenant and asst.-surgeon, U. S. A., leave of absence granted.

Ord M. Sorber, contract dental surgeon, from Pittsburg, Pa., to Fort Sam Houston, Tex., for duty at that station.

Ralph L. Taylor, contract surgeon, to proceed via Seattle, Wash., to Fort Gibbon, Alaska, for duty at that post.

J. Samuel White, contract surgeon, previous orders directing him to proceed to Fort Gibbon, Alaska, revoked.

Charles K. Winne, lieutenant-colonel, deputy surgeon-general, from Fort Porter, N. Y., to Omaha, Neb., for duty as chief surgeon, Department of the Missouri.

Navy Changes.

Changes in the Medical Corps of the Navy for the week ending Aug. 10, 1901:

Surgeon F. J. B. Cordeiro, ordered to the Pensacola Navy Yard.

P. A. Surgeon D. H. Morgan, detached from the Pensacola Navy Yard, and ordered to the Naval Hospital, Norfolk, Va.

Marine-Hospital Changes.

Official list of the changes of station and duties of commissioned and non-commissioned officers of the U. S. Marine-Hospital Service for the seven days ended Aug. 8, 1901:

Surgeon J. M. Gassaway, relieved from duty at San Francisco, Cal., and directed to proceed to St. Louis, Mo., and assume command of the service, relieving P. A. Surgeon W. G. Stimpson.

Surgeon W. P. McIntosh, to proceed to Jasper, Ga., for special temporary duty. Granted leave of absence for thirty days from August 24.

P. A. Surgeon W. G. Stimpson, upon being relieved by Surgeon J. M. Gassaway, to proceed to San Francisco, Cal., and assume command of the service.

P. A. Surgeon J. A. Nydegger, granted extension of leave of absence, on account of sickness, for thirty days from August 10.

Asst.-Surgeon J. M. Holt, granted leave of absence for one month from August 15.

A. A. Surgeon E. B. Hallett, granted leave of absence for seven days from August 10.

Hospital Steward E. B. Scott, granted leave of absence for six days from August 5.

Hospital Steward Charles Slough, granted leave of absence for fourteen days from August 6.

Hospital Steward G. A. Morris, relieved from duty at New York City, and directed to proceed to Havana, Cuba, and report to the chief quarantine officer for duty.

Hospital Steward W. C. Phillips, relieved from duty at Chicago, Ill., and directed to proceed to the Mullet Key, Fla., quarantine station, and report to the medical officer in command for duty and assignment to quarters.

PROMOTION.

Hospital Steward E. P. Olsen, promoted and appointed clerk of Class 2, in the office of the Surgeon-General, U. S. Marine-Hospital Service, July 16, 1901.

RESIGNATION.

A. A. Surgeon E. A. Smith, resigned to take effect from and after July 31, 1901.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, U. S. Marine-Hospital Service, during the week ended Aug. 10, 1901:

SMALLPOX—UNITED STATES AND INSULAR.

Alaska: Kluckwan, July 26, present.
California: San Francisco, July 21-28, 2 cases.
New Jersey: Newark, July 27-Aug. 3, 1 case, 1 death.
New York: Buffalo, July 22-29, 1 case; Elmira, July 27-Aug. 3, 2 cases; Gowanda, July 28, 7 cases; New York, July 27-Aug. 3, 41 cases, 14 deaths.
North Dakota: Bismarck, July 13-20, 1 case; Fargo, July 6-13, 1 case; Fisher, July 6-13, 1 case; Kensal, July 6-13, 1 case; Mayville, July 13-20, 1 case.
Ohio: Cincinnati, July 26-Aug. 2, 2 cases.
Pennsylvania: Philadelphia, July 27-Aug. 3, 4 cases.
Tennessee: Memphis, July 27-Aug. 3, 2 cases.
Washington: Tacoma, July 21-28, 1 case.
Philippines: Manila, June 15-22, 1 case.

SMALLPOX—FOREIGN.

Austria: Prague, July 13-20, 1 case.
Belgium: Antwerp, July 13-20, 4 cases, 2 deaths.
Brazil: Rio de Janeiro, June 30-July 14, 88 cases, 52 deaths.
Colombia: Panama, July 19-26, 6 cases, 1 death.
France: Paris, July 13-20, 5 deaths.
Great Britain: Dundee, July 13-20, 5 cases; Glasgow, July 19-26, 3 cases; Liverpool, July 6-13, 1 death; London, July 6-20, 26 cases.
India: Bombay, July 2-9, 5 deaths; Calcutta, June 29-July 6, 8 deaths; Madras, June 22-July 5, 13 deaths.
Italy: Messina, July 13-20, 9 cases, 3 deaths.
Netherlands: Rotterdam, July 20-27, 2 cases.
Russia: Moscow, July 6-13, 3 cases, 3 deaths; Odessa, July 13-20, 1 case; St. Petersburg, July 6-13, 3 cases, 1 death; Warsaw, July 6-13, 1 death.
Uruguay: Montevideo, June 8-15, 35 cases, 1 death.

YELLOW FEVER.

Brazil: Rio de Janeiro, June 30-July 14, 6 deaths.
Cuba: Havana, July 20-27, 3 cases.
Mexico: Vera Cruz, July 28-Aug. 3, 1 death.

CHOLERA.

India: Bombay, July 2-9, 2 deaths; Calcutta, June 30-July 6, 17 deaths; Madras, June 22-July 6, 4 deaths.
Java: Batavia, June 22-29, 30 cases, 20 deaths.

PLAGUE—INSULAR.

Philippines: Manila, June 15-22, 9 cases, 13 deaths.

PLAGUE—FOREIGN.

India: Bombay, July 2-9, 68 deaths; Calcutta, June 30-July 6, 15 deaths; Karachi, June 30-July 7, 1 case, 1 death.